

FEDERAL BUREAU OF INVESTIGATION
FOI/PA
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FOI/PA# 1204879-1

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80-604-61

August 7, 1940

Brigadier General Sherman Miles
Acting Assistant Chief of Staff
C-2
War Department
Washington, D. C.

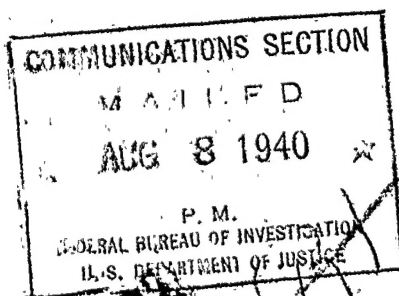
Dear General Miles:

Your letter of July 26, 1940, with which you transmitted additional information relative to sympathetic links, is acknowledged.

The valuable information which you transmitted has been incorporated in the Bureau's files on this matter. I greatly appreciate your courtesy in making this material available.

Sincerely yours,

Mr. Tolson _____
Mr. Nathan _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Glavin _____
Mr. Ladd _____
Mr. Coffey _____
Mr. Egan _____
Mr. Gurnea _____
Mr. Harbo _____
Mr. Hendon _____
Mr. Jones _____
Mr. Lester _____
Mr. Quinn _____
Mr. Nease _____
Mr. Tamm _____
Mr. Egan _____
Mr. Gurnea _____
Mr. Harbo _____
Mr. Hendon _____
Mr. Jones _____
Mr. Lester _____
Mr. Quinn _____
Mr. Nease _____
Mr. Tamm _____



~~SECRET~~

WAR DEPARTMENT
WAR DEPARTMENT GENERAL STAFF
MILITARY INTELLIGENCE DIVISION, G-2
WASHINGTON, D. C.

July 26, 1940.

Mr. Tolson	
Mr. Clegg	
Mr. Glavin	
Mr. Ladd	
Mr. Nichols	
Mr. Rosen	
Mr. Tracy	
Mr. Carson	
Mr. Egan	
Mr. Gurnea	
Mr. Harbo	
Mr. Hendon	
Mr. Jones	
Mr. Quinn	
Mr. Nease	
Miss Gandy	

b6
b7C

B
Lt. Col. J. Edgar Hoover,
Director, Federal Bureau of Investigation,
U. S. Department of Justice,
Washington, D. C.

Dear Colonel Hoover:

In accordance with your request there is attached additional information relative to ⁰sympathetic inks. Two memoranda on this subject were previously furnished to your Bureau during April and May of this year. The attached material completes the information on this subject available in the War Department at this time.

Sincerely yours,

Sherman Miles
SHERMAN MILES,

Brigadier General, U. S. Army,
Acting Assistant Chief of Staff, G-2.

Enclosure

In file
I ENCL. FM

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Ans. Jatt:z

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FEDERAL BUREAU OF INVESTIGATION
4 JUL 30 1940
U. S. DEPARTMENT OF JUSTICE
LAB. FIVE

~~SECRET~~

Date

8-7-

1940

Mr. Appel	1410	Mr. LaRock	7325E
Mr. Baughman	7325D	Mr. Magee	7325C
Mr. Beach	7325F	Mr. Martin	7326
Mr. Blackburn	1410	Mr. McCarthy	7325C
Mr. Blaine	1410	Mr. Mesnig	1410
Mr. Burgess	7328	Mr. Millen	7118
Mr. Chadduck	7325E	Mr. Miller	1410
Mr. Coffey	7326	Mr. Murray	7325D
Mr. Conrad	7120	Mr. Napier	1410
Mr. Couch	7330	Mr. Parsons	7325D
Mr. Dingle	1410	Mr. Pfafman	7120
Mr. Dunlop	7325F	Mr. Pickering	1410
Mr. Feehan	1410	Mr. Riesterer	7330
Mr. Felton	7325D	Mr. J. Willard	7325D
Mr. Freimuth	7325F	Mr. Williams	7118
Mr. Gasteiger	1410	Miss O'Neil	7326
Mr. Gould	7328	Typing Pool	7332
Mr. Holland	1410	LABORATORY FILES	
Mr. Hughes	7325D	Files	
		Mr.	

Please file in 80-604

[Handwritten signature]

Mo
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E. P. COFFEY

EAT:HA

July 23, 1940

RECORDED

Personal and
Confidential

53280

Brigadier General Sherman Hiles
Assistant Chief of Staff
G-2, War Department
Washington, D. C.

Dear General Hiles:

Pursuant to your recent request of
Mr. Tamm for information concerning the
development of concealed writing on photographic
prints, I am attaching hereto a copy of a
memorandum dated July 18, 1940 which outlines
the Bureau's experience in this regard.
Attaching to this memorandum are copies of
the photographs used in this experiment.

Very truly yours,

John Edgar Hoover
Director

Enclosures

By COMMUNICATIONS SECTION
Special Messenger
MAILED

★ JUL 23 1940 ★

P. M.

FAM:EG

July 16, 1940

80-604

MEMORANDUM FOR MR. LADD

Re: Development of Concealed
Writing on Two Photographic Prints.

This memorandum is prepared at the request of Mr. E. A. Tamm for the purpose of describing the manner in which some concealed writing was developed on photographic prints received for examination in the Technical Laboratory some time ago.

On November 26, 1937 Rear Admiral R. S. Holmes, Director of Naval Intelligence, transmitted to the Bureau under secret and confidential cover two identical photographic prints measuring approximately 8x10" with the request that they be subjected to all known tests to determine the presence of any secret or concealed writing. He stated that these photographs had been submitted to his office as an example of a new process of messages concealed in pictures, cards, et cetera, which might successfully evade censors in times of a National emergency and might be used either by Governmental agencies or by interests inimical to the United States.

One of these photographs was first subjected to such known methods as are available for the detection of secret writing which may be used without leaving any traces on the evidence indicating any tampering or effort to intercept the message. These methods included ordinary inspection with light striking the photograph at various angles, use of a low-power lens, transmitted light originating from a strong source, examination with x-ray equipment, inspection when exposed to a source of ultraviolet light, photography using ultraviolet light as a source of illumination, infrared filters using both reflected and transmitted light, et cetera.

Mr. Tolson _____
Mr. Nathan _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Ladd _____
Mr. Foxworth _____
Mr. Coffey _____
Mr. Egan _____
Mr. Glavin _____
Mr. Harbo _____
Mr. Hendon _____
Mr. McIntire _____
Mr. Nichols _____
Mr. Pennington _____
Mr. Rosen _____
Mr. Quinn Tamm _____
Adm. Files _____
Pers. Files _____
Tour Room _____
Mr. Tracy _____
Miss Gandy _____

Page 2
Memorandum for Mr. Ladd

b3 Per CIA
b7E

[REDACTED]

All of these methods so far mentioned, when cautiously applied, may be used without seriously affecting such a document.

The third step consisted in the application of chemical reagents by what is known as the "striping" method. This was accomplished by means of a small narrow brush or a cotton swab containing a chemical solution passed over the photograph in such a manner as to most probably cross the path of a secret message. Several such solutions were used.

Inasmuch as the evidence being examined in this case was a photograph, it was considered as a possibility from the beginning that in the event that a message is actually concealed it would be concealed by a photographic process. Experiments involving photographic processes were reserved as a last resort since the application of any such reagents would materially alter the nature of the original photograph. At this stage of the work it was decided to cut one of the photographs diagonally, thus making two pieces, and treating each separately. One of these pieces [REDACTED]

b3 Per CIA
b7E

[REDACTED] This revealed the message as shown on one of the attached photographs identified as #2.

Up to this time one of these photographs had not been touched during the experimentation. [REDACTED] in the same manner as the first, and an identical message was found. A photographic copy of the evidence at this stage of the experimentation is attached hereto and is identified as #3. The original photograph was then placed in [REDACTED]

b3 Per CIA
b7E

Page 3

Memorandum for Mr. Ladd

[REDACTED]
disappear, thus restoring the photograph to its original condition.

b3 Per CIA
b7E

b3 Per CIA
b7E

Attached hereto are three photographs. Number 1 is a copy of the original evidence, #2 is a photograph of a part of one of the original photographs carried through the entire series of experiments, and #3 is a copy of one of the original photographs showing the concealed message fully developed.

The Director of Naval Intelligence was furnished with a photographic copy showing the concealed message, but he was not advised of the manner in which this concealed message was discovered.

Respectfully,

E. P. Coffey

July 18, 1940

MEMORANDUM

Re: Development of Concealed
Writing on Two Photographic
Prints.

On November 26, 1937, Rear Admiral R. S. Holmes, Director of Naval Intelligence, transmitted to the Bureau under secret and confidential cover two identical photographic prints measuring approximately 8x10" with the request that they be subjected to all known tests to determine the presence of any secret or concealed writing. He stated that these photographs had been submitted to his office as an example of a new process of messages concealed in pictures, cards, et cetera, which might successfully evade censors in times of a National emergency and might be used either by Governmental agencies or by interests inimical to the United States.

One of these photographs was first subjected to such known methods as are available for the detection of secret writing which may be used without leaving any traces on the evidence indicating any tampering or effort to intercept the message. These methods included ordinary inspection with light striking the photograph at various angles, use of a low-power lens, transmitted light originating from a strong source, examination with x-ray equipment, inspection when exposed to a source of ultraviolet light, photography using ultraviolet light as a source of illumination, infrared filters using both reflected and transmitted light, et cetera.

[REDACTED]

[REDACTED] All of these methods so far mentioned, when cautiously applied, may be used without seriously affecting such a document.

b3 Per CIA
b7E

80-604-62

The third step consisted in the application of chemical reagents by what is known as the "striping" method. This was accomplished by means of a small narrow brush or a cotton swab containing a chemical solution passed over the photograph in such a manner as to most probably cross the path of a secret message. Several such solutions were used.

Inasmuch as the evidence being examined in this case was a photograph, it was considered as a possibility from the beginning that in the event that a message is actually concealed it would be concealed by a photographic process. Experiments involving photographic processes were reserved as a last resort since the application of any such reagents would materially alter the nature of the original photograph. At this stage of the work it was decided to cut one of the photographs diagonally, thus making two pieces, and treating each separately. [redacted]

b3 Per CIA
b7E

[redacted] This revealed the message as shown on one of the attached photographs identified as #2.

Up to this time one of these photographs had not been touched during the experimentation. This was then bleached in the same manner as the first, and an identical message was found. A photographic copy of the evidence at this stage of the experimentation is attached hereto and is identified as #3. The [redacted]

b3 Per CIA
b7E

[redacted] caused the original message to disappear, thus restoring the photograph to its original condition.

b3 Per CIA
b7E



- 3 -

Attached hereto are three photographs. Number 1 is a copy of the original evidence, Number 2 is a photograph of a part of one of the original photographs carried through the entire series of experiments, and Number 3 is a copy of one of the original photographs showing the concealed message fully developed.



DEPARTMENT OF STATE
WASHINGTON

In reply refer to
RP 023.895-

July 27, 1940

My dear Mr. Hoover:

I refer to your letter of March 16, 1940 with which
you very kindly transmitted a copy of the June 1939 issue
of the Federal Bureau of Investigation Law Enforcement
Bulletin for the use of [redacted]

There is enclosed a copy of a despatch of May 29,
1940 from the American Consulate General at [redacted] to-
gether with the accompanying translation of a German pub-
lication on the subject of secret writings. The transla-
tion was furnished by [redacted] as of possible
interest to you.

Sincerely yours,

For the Acting Secretary of State:

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& CL
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80-604-63
FEDERAL BUREAU OF INVESTIGATION
U.S. DEPARTMENT OF JUSTICE
AUG 1 1940
E. Wilder Spaulding
Chief, Division of
Research and Publication

Enclosures:

From Consulate General
[redacted] May 29, 1940,
and enclosure.

J. Edgar Hoover, Esquire,

Director, Federal Bureau of Investigation,

Department of Justice.

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DUPLICATE

THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

AMERICAN CONSULATE GENERAL

May 29, 1940

b7D

SUBJECT: German Document concerning Invisible Secret Writings.

THE HONORABLE

THE SECRETARY OF STATE

WASHINGTON

SIR:

I have the honor to refer to the Department's instruction of April 5, 1940 (file number 023,895), transmitting with reference to the Consulate General's despatch number 662 of January 25, 1940, a copy of the June 1, 1939, issue of the Federal Bureau of Investigation Law Enforcement Bulletin requested by

b7D

There is given below the text of
reply to this office dated May 18, 1940, acknowledg-
ing his thanks for the document and enclosing a copy
of a translation of a German publication relating to
~~secret writings~~ which he believes might be of some
use and interest to the Federal Bureau of Investiga-
tion:

b7D



I have replied to [redacted] thanking him
for the publication and stating that it would be for-
warded to the United States Federal Bureau of Investiga-
tion as he requested.

b7D

Respectfully yours,

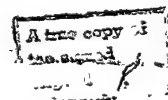
[redacted]
American Consul

b7D

Enclosure:

Single copy of - Translation - Invisible Secret Writings
and How to Recognize Them - by
B. Langen and M. Nippe, Konigsberg,
Prussia (Handbook of Biological
Working Methods - published by
Geh. Med.-Rat Prof. Emil Abderhalden).

020
AMD:bg
To the Department in quintuplicate



INVISIBLE SECRET WRITINGS AND HOW TO RECOGNISE THEM.

By B. LANGEN and M. NIPPE, Königsberg, Prussia.

The desire to be able to pass on a message which, to the person forwarding an apparently harmless letter or to other persons into whose hands such a letter might fall, shall remain unnoticed and therefore unknown is age-old, and equally as old is the knowledge of certain means which make it possible. HERODOTUS knew as early as the year 483 B.C. of secret writings which were produced by the juice of plants; in 43 B.C. OVID gave the Roman ladies the advice to write their love letters in milk, and recommended that they make this writing visible by strewing ashes on it. PLINY recommended in the year 23 A.D. the use of plant juices instead of milk.

About the year 1200 A.D. the Arab ABD-EL-LATIF advised writing with the white milk juice of the wild fig which dries invisible on the paper, and appears in red when warmed by the fire.

The further we advance into modern times, the greater becomes the circle of people who are interested in being able to transmit or receive secret messages without having to make use of a code, because coded news is in itself conspicuous, and even up to most recent times, before the construction of coding machines with millions of different combinations, was not at all safe from decoding. In the case of almost all spies, criminals, smugglers, secret agents, and any other similar lawbreakers, this interest may be assumed, more or less.

Secret writings can be produced with steel pens, goose quills, glass points, agate pencils, pointed wood, and many other instruments. In many cases, an attempt to prepare more primitive secret writings will be foiled in that the writer notices that he slightly scratches the paper surface in spite of all precautions, so that the tester is able to see the slight roughness in a good light. Such secret or hidden writings can be written on the most various papers, newspapers, letters appearing harmless or their envelopes, &c. All sorts of other possible carriers can be considered, photographs, leather, linen, other textiles, wood, metal, glass, &c.

It is a characteristic of secret ink that it is colourless, and remains so not only during the writing, but also after the drying, and does not change the described surfaces for the naked eye.

The possibilities and means employed differ with persons, and therefore the criminologist often has a very difficult task in front of him, since hitherto there has not been even a universal way of discovering the presence of secret writings, much less of decoding them, and on the other hand, only a few basic formulae for the nature of the secret ink, and therefore for the processes which have to be applied to make legible any hidden writing which may be present. Various methods may be considered, of which, according to circumstances,

-2-

the original use of one can, if unsuccessful, make the use of another impossible, and vice versa. The situation becomes further complicated since, in certain cases, it may be advisable to observe the secret writing, but let it pass unhindered, in order to lull the suspicions of sender and recipient, and thus lead to the exchange of further communications, i.e. when it is therefore a question of using methods which leave no trace of the examination.

In the case of an important concern, which in itself may be presumed to have secret communications, it is impossible to judge how often these actually are present. However it is probably that they are more frequent, and it is technically quite impossible for the supervising staff in such a concern to make a satisfactory examination for written communications in secret writing.

In this respect, the general use of the analytic quartz lamp does not help very much, in view of the fact that the persons supervising the correspondence are often not in a position to have the quartz lamp ready at hand.

The signs of secret writings show up better by good daylight than by artificial light when they are subjected to an oblique examination. Even if it is not possible to decode in this way, at least attention is directed to the presence of some secret writing.

The sense of touch is of no assistance as a rule, unless the writing is in very rough relief, which can then also be seen. On examination, the lack of gloss on the paper may also be noticed.

While in most cases the secret writing will be primitive and very easily recognisable, in some complicated methods, even scrutiny in an oblique light will be unsuccessful, often.

First of all, it must be stressed that, for the decoding of secret writing, there are no methods of choice. If there is any suspicion, the expert in natural scientific, physical and chemical methods should be called.

With a few different types of secret writing, examination in Ultra-violet light gives clues of the presence of the writing, and with very few types only is it possible to make secret writing legible, or clear enough to be photographed, in ultra-violet light.

Essential for the writing as for its meaning is also the type of paper used. Chemical reagents, [redacted] b3 Per CIA [redacted] but also the ultra-violet ray, give sometimes positive and sometimes negative results with various sorts of paper, and with papers of different colours. No set rules can be laid down for the individual kinds of paper or for individual colours.

The great advantage of the quicker scrutiny in ultra-violet light is that it makes no difference to the secret writing. The effect of the ultra-violet light on secret writing which is to be observed, or even to be read, and in circumstances also photographed, depends on the Fluorescence. Either the writing fluoresces and the background does not, or the background fluoresces and the writing does not, or writing and background both glow, but in various lights, and finally, by application of filters or chemical methods, a contrast between writing and background in ultra-violet light can be obtained. Before applying chemical contrast agents, it should be carefully considered whether these would not make the writing invisible. This applies for example to the immersion for two minutes in a [redacted] b3 Per CIA [redacted] afterwards draining off or shaking off the superfluous Ferrosulphate solution - the process recommended by KOEGEL in his "Palimpsest-photography."

As there are so many agents which are more or less suitable for use as secret inks, it is impossible to enumerate the reactions

JAH:RTM

August 13, 1940

Laboratory Report #36803

80-604.

b7E

MEMORANDUM FOR MR. LADD

Re: Mr. A. P. Gwiazdowski

Under date of July 25, 1940, Mr. R. W. Baily, Manager, Baily Vibrator Company, 1526 Wood Street, Philadelphia, Pennsylvania transmitted a postal card mailed from Suwalki, Germany for examination in the Technical Laboratory. Mr. Baily requested that this card be examined to determine whether there was any secret message hidden on the card.

The postal card, which is listed as specimen Q1, is made of soft, absorbent paper. One side of this card is blank and the other side has printed thereon a return address form, an address form and a stamp. On the printed side of this card there is also left space for a short message, this printed side being similar in form to ordinary picture post cards. This card appears to be a type which is sponsored by the Government to simplify the work of postal censors.

Upon ultraviolet examination of this card, it was found that whereas the surface fluoresced, there were two stripes on the printed side of the card which did not. These stripes, which were about an inch wide were so drawn that one ran diagonally from the stamp corner and the other horizontally across a space which had been left blank by the writer. The stripes are similar to those which would be made if the card had been tested for secret ink by means of a solution.

Inasmuch as it was not deemed advisable to stain the original evidence, no liquid reagents were applied to this postal card. Visual examination, examination by ultraviolet light [redacted] revealed no traces of secret writing. b3 Per CIA b7E

RECORDED & INDEXED

Under date of August 12, 1940, the original evidence described above was returned to Mr. Baily with thanks for submitting the same to the Bureau. Photographs of the card have been retained in the files of the Laboratory.

LADD	FIVE	FILE
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Page 2,
Memo for Mr. Ladd

This information is being furnished
for purposes of record, and it is suggested that this information
be incorporated in the Bureau file on secret inks, SO-604.

Respectfully,

E. P. Coffey

Federal Bureau of Investigation
United States Department of Justice

SFP:IG

Washington, D. C.

September 5, 1940

MEMORANDUM FOR MR. LADD

Re: Visit of Lieutenant W. B. Fortune

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On August 30, 1940 Lieutenant W. B. Fortune of the Signal Corps was brought to the Laboratory by Captain W. P. Corderman, of G2, General Staff, United States Army. Captain Corderman and Lieutenant Fortune were referred to the Laboratory by Mr. H. H. Clegg.

Lieutenant Fortune was turned over to Mr. Pickering by Mr. Martin and was shown through the Document Room. Lieutenant Fortune stated that he was assigned to work in the Signal Corps in connection with secret inks and that this work was just starting up again. Mr. Pickering showed Lieutenant Fortune the various centralized files in the Document Room and gave him a general idea of the nature of the work. Lieutenant Fortune was then shown through the Laboratory by Mr. Murray. Altogether Lieutenant Fortune spent about one-half a day in the Laboratory and expressed his appreciation of the courtesies which had been extended to him.

Respectfully,

EPC
E. P. Coffey

RECORDED & INDEXED

80-604-65
FEDERAL BUREAU OF INVESTIGATION
1 SEP 6 1940
U.S. DEPARTMENT OF JUSTICE
LADD
OLIVER

**Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.**

FMM:MJ

October 12, 1940

MEMORANDUM FOR MR. LADD

Re: Joseph R. Cannon, O.N.I.

Mr. Joseph R. Cannon of O.N.I. called at my office on the afternoon of October 7, 1940 with five 20¢ denomination postage stamps which he wanted examined for secret writing.

Examiner Miller of the Laboratory was requested to make an examination by means of the microscope and with ultraviolet light for this purpose, and reports that no evidence of any secret writing or secret messages could be found on these stamps.

Inasmuch as Mr. Cannon was present during the entire course of the examination and knows the results thereof, a formal report is not being submitted to O. N. I. at this time.

Respectfully,

E. P. Coffey
E. P. Coffey

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&
INDEXED

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FEDERAL BUREAU OF INVESTIGATION	
1 OCT 14 1940	
U.S. DEPARTMENT OF JUSTICE	

MAILED
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Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

JAM:AF

October 10, 1940

MEMORANDUM FOR MR. LADD

Re: P. F. BIGGINS
Attorney
Washington, D. C.

The above-named individual called the Laboratory on October 7, 1940, and talked with Mr. Martin. He stated he had a client in South Carolina who was involved in a civil suit and they were desirous of ascertaining the age of a written document. He inquired whether this service could be made available to him. He was advised of the facilities of the Laboratory and to whom such facilities could be made available. He stated he understood the situation. He inquired whether he could be furnished the names of any competent document men in this section whom he could contact. He was advised that the Bureau did not maintain a list of qualified experts engaged in private practice.

Respectfully,

E. P. Coffey
E. P. Coffey.

RECORDED

80-6-4-67
FEDERAL BUREAU OF INVESTIGATION
6 OCT 15 1940
U. S. DEPARTMENT OF JUSTICE
LADD

SUMMARY OF DATA ON SECRET INKS
AND THE CONCEALMENT OF MESSAGES

80-604-10

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~~STRICTLY CONFIDENTIAL~~
NOT TO BE PUBLISHED

SUMMARY OF DATA ON
SECRET INKS AND THE CONCEALMENT OF MESSAGES

The information contained in this paper has been collected from a great many different sources and consolidated to give as complete a discussion as can be given with the data presently available to the Bureau. Most of the general methods described herein appear to be well-known by those agencies officially interested in the subject. The information relative to the intensification of [redacted] process, however, was supplied by [redacted] during the World War and constitutes the only record available to the Bureau relative to this feature of [redacted] development. Particular attention is called to the information supplied by G-2 of the General Staff of the United States Army relative to the "Simple" method of the development of secret writing, the formulae of the solutions used, the method of making the dampening test and certain formulae for making secret inks with the formula for the developers and methods for using the same. This information is very important and represents the most advanced information available at present.

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There is being given first a general discussion of secret inks with the general methods of development followed by a list of substances which can be used as secret inks together with the manner of use and the general and specific methods for development. There is also given separately a discussion of various other methods by which messages can be concealed. These include methods which have been used in the past as well as methods suggested by the possibilities which they provide.

SECRET INKS

Secret, sympathetic, or invisible inks have been known for some centuries, as evidenced by references to their use in the literature in connection with intrigues of various sorts. It is the purpose of this section of the paper to present a tabulation of compounds which have been reported in

the literature as chemical playthings or as an actual means of correspondence between espionage agents, imprisoned correspondents, or others who desire, for either legal or illegal purposes, to have their messages read only by the person for whom the message was written. In addition, there is presented a short discussion of this problem, as well as some suggestions on the subject not found in the literature.

A secret ink may be defined as a liquid or solid substance which may be employed as a pencil or writing fluid, the traces of which become invisible to the naked eye by reason of the transparency or extreme dilution of the writing material, and which may be developed by the use of some appropriate reagent so that there results a contrast between the traces and the background similar to that found in visible writings. The practical requirements for the use of such a means of communication may prohibit the use of many compounds which would otherwise be included in the above definition.

The requirements for such an ink depend on the general situation existing at the time of its use. The factors of the situation which are most important might be classed as (a) the availability of materials to the writer, for obviously a person imprisoned has available fewer compounds than one who is a so-called "free" correspondent, (b) the vigilance and resources of those persons other than the intended recipient who endeavor to develop the message, and (c) the practicability of secreting the writing materials on the person or in the personal belongings of the writer.

Since the above-mentioned factors are so influential in determining the type of ink to be utilized, there is set forth below a list of these requirements of which only a few may be met in a specific case either because of the situation surrounding the correspondents or because of their lack of training in the subject.

1. The ink should be readily available to the writer so that adequate supplies for future needs may be obtained should the writer become separated from the recipient.

2. The obtaining of additional supplies of the ink should not excite suspicion by reason of the comparative rarity of the constituents.
3. The ink should be available to the writer in some form which in itself does not cause suspicion. It may be included as a constituent in pharmaceuticals, kitchen or other household substances, the sizings of papers, or impregnated in ordinary clothes.
4. The materials necessary for writing the message, such as the pen point in the case of fluid inks or the type of paper or other material used to support the writing, should not arouse suspicion by their nature.
5. The development of the ink should be possible by as few chemical reagents and processes as practicable under the circumstances.
6. When the writing is completed there should be as little indication as possible in the spacings between lines, the arrangement of the material in the dummy message, or in the quality of lines in the dummy message which cross those of the secret, which would excite suspicion of an interceptor.

A perfect secret ink then, would be one which meets all of the above requirements and which could be developed by only one reagent. The literature on the subject makes no mention of such a perfect ink.

SUGGESTED PROCEDURE FOR GENERAL EXAMINATION

A careful examination of the document should be made in ordinary visible light. If desirable, a low power reading glass may be used as an aid to the scrutiny. Particular attention is paid to abnormally wide spaces between the lines of innocent writings. A close examination of the visible writing, particularly those portions of letters extending above and those

below the common lines of writing, may disclose feathering or blurring of the ink stroke caused by the crossing of the lines of visible writing by the interlineated secret writing. The examiner should also be alert to scratches or disturbances of the paper surface or fibers where no visible writing appears, and he should likewise be watching for indications that the paper surface has been wetted and subsequently dried.

The document might next be viewed with visible light crossing the paper at a grazing incidence to the surface thereof. This can be accomplished by the utilization of an artificial light source from which the light rays emanate nearly parallel through special lenses or a similar effect can be obtained by holding the paper surface at eye level while looking directly at the ordinary light source such as a window. This type of examination will facilitate detection of disturbed paper fibers and also indentations in the paper caused by writing.

Particular attention should be directed to the kind of paper used as thin paper with a glazed surface is decidedly unsuitable for use with secret ink. The best kind of paper for such use would be reasonably heavy paper with a mat surface.

Visual examination of the document when illuminated by filtered ultraviolet light is the next step. This is a most important examination and will in itself immediately detect a large number of secret writing media. The most definite fluorescence is usually obtained from a filtered light source consisting of a mercury arc light in quartz. However, for most purposes of this kind a cheaper source of ultraviolet or near ultraviolet will usually suffice. Such cheaper lights include those of the "Niko" or "Red Purple Bulb" style or may be obtained from a cluster of six or eight argon light bulbs. In the latter cases filtering is not necessary.¹

1 - See "Fluorescence Analysis in Ultra Violet Light" by J. A. Radley and Julius Grant, for types of lamps and methods of using.

- 5 -

It is quite possible that the visual method outlined above will not afford sufficient contrast for reading, if, indeed, any appears at all. In such cases, recourse may be had to ultraviolet photography in the hope that greater contrast exists in the lower wavelength regions. Perhaps the simplest manner of photographing in the ultraviolet is to utilize a camera equipped with a quartz

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STRIPING

Liquid reagents are applied by a procedure known as "striping". As the name implies, stripes of the reagent are applied by means of a cotton swab which is wrapped around the end of a wooden applicator, the stripes being about half an inch in width. This process is a compromise between treating the entire sheet and thus perhaps rendering the ink impossible of development and treating a small portion until a developer is found.

Obviously, some care must be given as to the location of the stripes so that they will cross the position where writing is suspected. Although it is generally advocated that the stripes should run diagonally from one corner of the sheet, some judgment must be used depending on the appearance of the suspect document or cloth.

Since striping with liquid reagents may cause the document to be stained, it is advisable to photograph the document before the addition of those reagents which will so alter the appearance. In this manner, an accurate copy of the communication is obtained from which a simulation may be made should it be desired to forward the material to avoid discovery of the interception.

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1. The Simple Test.

The reagent, Simple Developer No. 1, is prepared as follows:

When solution is complete, dilute to a volume of two liters.

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This solution is allowed to cool and, after filtering, is ready for use.

Another reagent, Simple Developer No. 2, is prepared as follows:

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Developer No. 2 gives a somewhat cleaner and more permanent development on certain types of paper. It has been used for the development of secret messages once their presence has been determined by the use of Simple Developer No. 1.

The cleaning solution is prepared as follows:

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The Simple Developer is applied to all ordinary letters and to blank sheets of paper in a strip about two inches wide running diagonally across the paper. This is done on both sides of the paper in such a way that the strips cross one another and are not placed one behind the other. Both the inside and the outside of the covering envelope are tested in the same manner. Enclosed envelopes are examined on both sides. The backs of photographs and photographic post cards are tested by making a diagonal strip and if no writing develops the whole of the back is covered with the testing solution in order to avoid indications, after cleaning and drying, that the article has been examined.

The Simple Developer may be applied with a half inch hair brush but the usual practice has been to use small swabs made by twisting absorbent cotton around the end of a wooden applicator.

The best amount of solution to use is that which will wet the paper without leaving an excess of liquid on the surface. This may be attained by repeatedly dipping the swab into the solution and pressing the swab on a piece of blotting paper. This process causes a complete penetration of the swab. In use the swab is dipped into the solution and the excess is removed by rolling and pressing the swab against the upper portion of the bottle.

The strip should be carefully watched for indications of writing. On most papers it will be sufficient to watch until the paper becomes colored. The intensity of this color may be judged by a comparison with the color produced on testing slips, that is, standard samples of various sorts of paper which contain secret writing.

During the course of the day each examiner must test the efficiency of his solution at least twice by its action with writing on the testing slips.

Correspondence papers may be divided into five different classes:

1. Flimsy, poor quality papers such as tissues.
2. Glazed papers often lined off in small squares.
3. Linen faced papers.
4. Bond papers with a soft surface.
5. Bond papers with a hard surface.

In addition to the above all sorts of papers may be expected such as sheets torn from cheap notebooks, wrapping paper, etc.

The Simple Developer reacts quickly on classes, 1, 3, and 4, but less quickly on classes 2 and 5. Papers of these classes may require a second application of the testing solution.

In this connection it should be noted that papers vary widely in their composition, sizing and treatment following manufacture so that many exceptions to the general statements contained in this summary can be expected, due either to chemical or physical reactions between inks, developers and paper, or failure of these reactions to occur.

With the Simple Developer secret inks may be divided into two classes:

1. The greasy type [redacted]
2. The nongreasy type such as aqueous solutions of [redacted]

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On most classes of papers the greasy type of ink gives a development known as a "resist", that is, the writing appears lighter than the background. On papers of class 2, the greasy types of ink develop normally, that is, the writing is much darker than the background. On papers of class 5, the greasy types of ink develop normally but very slowly and it is advisable in those cases where any of the above-mentioned effects are noted to apply the testing solution two or three times at intervals of fifteen seconds, and then set the paper aside for some minutes in order to allow sufficient time for the solution to act.

With inks of class 2, the development is normal, that is, dark brown against a lighter background except in those cases [redacted] with the ink to produce a colorless or a colored compound.

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THE TEST FOR DAMPENING

The first test for Dampening consisted in making a diagonal strip across the paper with a swab moistened with distilled water. The paper was allowed to dry and then a strip was made across the diagonal with the Simple Developer. If the paper had not been dampened, the water strip showed up as a very pronounced positive. If the paper had been dampened, there was no marked contrast between the color of the water strip and the color of the surface near the strip.

In the new test for Dampening, two strips are made diagonally across the paper. One strip is made with water and the second strip is made with a solution composed of [redacted]

This second solution must be protected from the air and from contact with water. The strips should be at least one inch

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wide and should be separated from each other by at least one inch. The paper is hung up to dry for at least two hours and it then should be examined under good light. The water strip may be plainly visible, indistinct, or not visible at all. The alcohol strip will ordinarily be invisible.

If, on holding the paper horizontally in the light, one can see that the surface glaze of the paper has been removed in the water strip, one may assume that the paper has not been dampened. There may be cockling or shrinking but that has no significance.

A stripe is then made across both diagonals with the Simple Developer. If the paper has not been dampened, the water strip will show a strong positive; the alcohol strip will show no more than a weak positive. If the paper has been dampened the water strip shows a faint positive which gradually fades into the background; the alcohol strip usually shows a resist, that is, the alcohol strip will be lighter than the background.

The cause of this resist is supposed to be due to the solvent action of the acid-alcohol mixture on the sizing materials of the paper. This solution comes to the surface, the solvent evaporates and leaves on the surface a deposit of the sizing materials which prevents or retards

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The Dampening Test appears to work best upon papers which have been sized with gelatine; its accuracy on papers sized with other materials is uncertain.

Most of the errors involved in this test are errors which indicate that the paper has been dampened when actually it has not been dampened. Hence no letters which have been dampened will escape detection, but many which have not been dampened will appear to require the Specific Tests. Much time must be devoted to the training of the examiners in this test. Papers of all sorts and both dampened and undampened must be used in their instruction. Rosin sized papers even though undampened may show a resist with the acid-alcohol strip.

Excellent qualities of gelatine sized papers also often appear to have been dampened when such is actually not the fact.

SIMULATION OF SECRET WRITING

The Simple Test will often reveal indications which at first sight will appear to be secret writing, but which actually are due to other causes. Certain of the major tests will also reveal such indications. Letters showing such apparent secret writing must undergo further examination.

The causes of apparent secret writing will usually be found among the following: Grease spots, the presence of mechanical wood pulp in the paper, the presence of mineral salts in the paper, the previous examination of the letter in some other laboratory, the appearance of the visible writing of one side of the paper upon the other side due to the wetting of the paper by a strip of developer, offsets of the visible writing, and scratchings due to some peculiarity of penmanship.

If a letter has been examined by one [redacted] methods and cleaned in another laboratory, this fact may be proved by spotting the paper with an acidified solution of [redacted]

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[redacted] If the apparent secret writing is due to the visible writing on one side of the paper appearing in the wet strips, this may easily be proved by the use of a mirror.

An offset is due to the absorption by a piece of paper of material from the ink of another piece of paper with which it is in close contact. The writing in an offset is the mirror image of the visible writing which caused it. The following are some of the common types of offsets:

(a) Writing inks which have been thickened by the addition of gums very often leave an offset in the same color upon the opposite sheet.

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(c) The testing and cleaning fluids used in some previous examination of the liquid, when improperly dried, may cause the formation of an offset.

(d) Offsets are easily produced if a letter written in indelible ink or with an indelible pencil, both of which contain a basic dyestuff like methyl violet, becomes damp.

(e) Offsets are often caused by the use of blotting papers of poor quality. Ink may remain on such blotters for quite a period of time and then when the blotter is placed upon a paper this ink is transferred to the paper. This sort of offset is not reversed.

(f) When a letter is placed in a copy press it may take up impressions, either visible or invisible, of previous letters. These offsets also are not reversed.

(g) If an untuned photograph is enclosed in a letter an offset of the writing of the letter may be formed on the back of the photograph due to a chemical reaction between one or more of the constituents of the ink and the silver salts in the photograph. If the letter and photograph are enclosed in a very thin envelope the action of light on the untuned paper may produce a print of the writing, lighter on a darker background, as in the printing from a negative in the ordinary way.

(h) Offsets may also be produced by chemical reactions between constituents of the ink and dyestuffs used to color the paper.

Chemical methods of development are seldom of any use in intensifying offsets since so little material is



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Offsets should be examined most carefully because it is possible that a differential ink may cause an offset when the ordinary visible ink will not.

Other causes of simulated secret writing may be found in peculiarities of penmanship. Among these may be mentioned disturbance of the surface of the paper due to a ring on the writer's finger, due to a fingernail, but most often due to the manner in which the writer holds the pen. Certain types of pens have very wide shoulders and some writers hold their pens in such a position that the shoulders scratch the surface of the paper. Usually there is no ink on the shoulder, but the scratch will be revealed by the Simple Test and if the paper has not been dampened, it may be revealed by other tests. The revealed scratches will bear a definite relationship to the visible text.

When letters are written on pads of paper, an impression of the writing is often made on one or more of the sheets below, especially if much pressure is used and if the writing is done with a hard pencil. Such indentations may often be read by utilizing light of grazing incidence which is best applied by means of a lamp containing a right-angled reflecting prism. A set of photographs of the paper containing the indentations, taken so that a different portion of the paper is illuminated in each photograph, may aid in the decipherment of the written material since comparison of the photographs will show different portions of the letters contrasted with the background.

An alternative method, but one which is apt to soil the paper, consists of brushing a powder [redacted] over the surface of the paper. The powder is rubbed in lightly with the finger, with the paper placed upon a moderately hard surface. The indented writing appears light against a dark background.

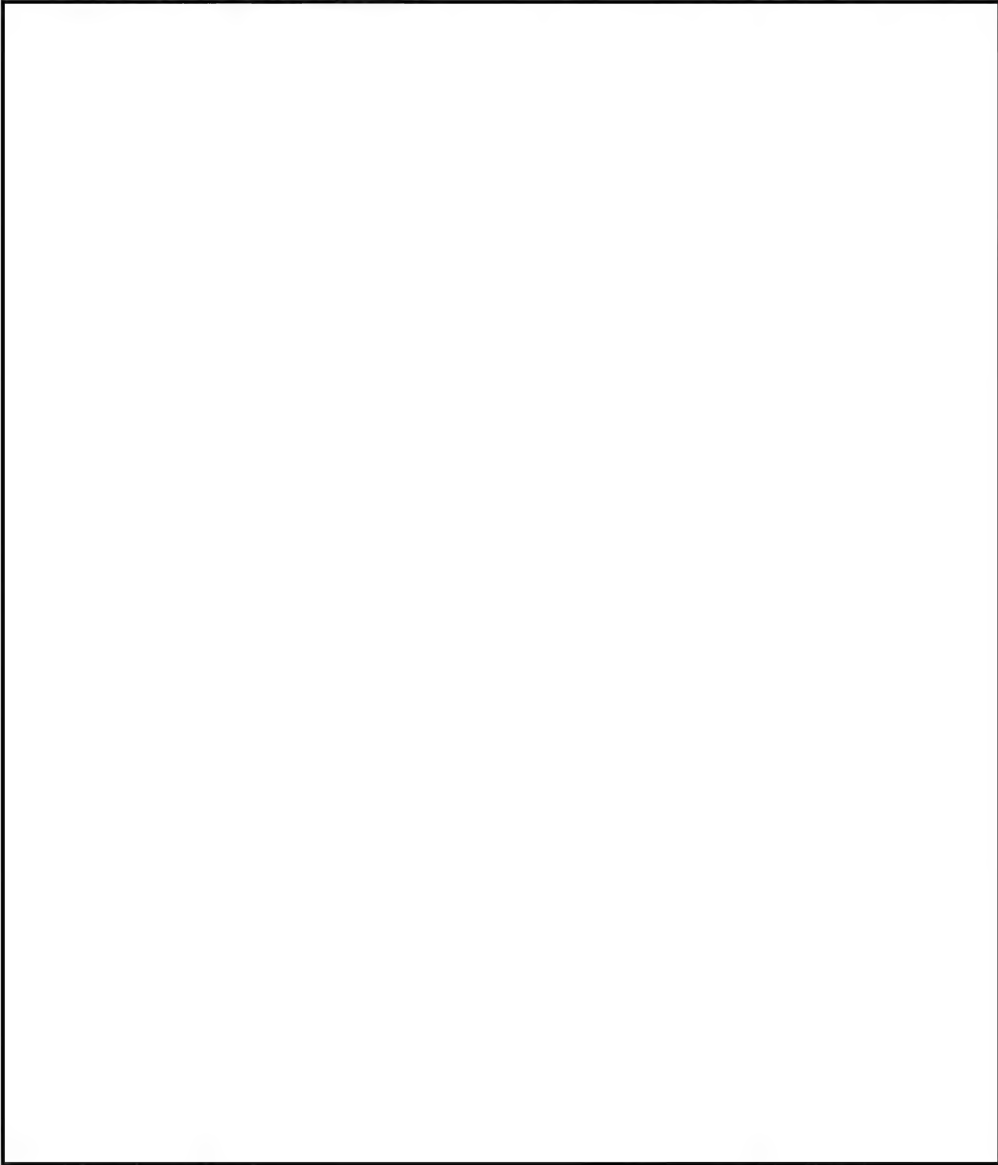
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GROUP DEVELOPERS

If development is not successful with the above general developers, the search for a proper

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reactant proceeds by the application of reagents which will react with large groups of chemical compounds. The action of such group reagents is based on such properties of the ink as oxidizing or reducing power, or the presence of a certain molecular grouping which may be attached to form a colored compound.



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This method of development detects any disturbance which has been set up upon the surface of the paper by drawing a pen dipped into water over it. Thus, writing in tap or distilled water is readily revealed.

This test will therefore reveal writing in any one of the enemy secret inks, provided the paper has not been damped after writing. However, on some papers development takes place even when the paper has been damped after writing, therefore the test is included among the special tests.

MISCELLANEOUS DEVELOPERS

The general methods of development so far given represent the best methods presently available in the Bureau. There are several other general developers which have been suggested, however, and these are mentioned here for such value as they may have.

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COMPOUNDS REPORTED AS SECRET INKS

The inks listed below have been divided into two groups. Table I is an alphabetical tabulation of commercially pure chemicals which have been used alone or in conjunction with other pure chemicals to form writing fluids. Obviously, such inks would only be used by persons with some knowledge of chemistry or by those who have been furnished such compounds for a specific use. Table II lists those substances which are either mixtures of various chemicals for commercial sale or mixtures of indefinite proportions, for example soap and biological fluids. Into this category would fall those inks commonly used by prisoners and by those not too conversant with this method of communication. This last table gives an indication of the magnitude of readily available substances which may be used as secret inks.

It should be noted that the tables have been compiled from available literature on the subject and that in many cases the results have not been verified by laboratory experimentation in this Bureau. In many cases, the compounds are designated in the literature by obsolete or nontechnical names which have been changed to the modern nomenclature where possible. Development of any of these inks by the general developers, [redacted] is not given in the tables, nor is development by any of the group developers, such as acids, alkalies, oxidizing or reducing agents, given except in those instances where development by such a reagent is specifically indicated in the literature.

TABLE I. List of commercially pure chemicals reported in the literature as being suitable for use or as having been used as secret inks. No attempt has been made to verify many of these reactions. With regard to fluorescent substances, the degree to which they would fluoresce when used as a secret ink would depend on the concentration of the substance in the ink. The concentration may be so low as to render the fluorescence imperceptible.

* See other developers under general compounds of the metal.

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LAUNDRY MARKS

Cloth as well as paper can be used for carrying messages written with secret inks. The same method can be used as that used by modern laundries and dry cleaners, many of whom have adopted an invisible system of marking clothing for identification purposes. Invisible inks are commercially available for this purpose. They are usually of a highly fluorescent nature so that the laundry examinations are carried out in ultraviolet or violet light. Such inks retain their visibility in ultraviolet light after the clothing has been washed.

X-RAYS

Practically no mention is made in the literature of substances which may be developed by x-rays. Such development might be by reason of the opacity of the ink to x-rays so that soft rays might differentiate between the writing and the background on a photographic plate. Development might also be obtained by fluorescence similar to that found in the ultraviolet. Material on x-ray fluorescence is limited because most of the discoveries in this field are trade secrets of very few companies engaged in the manufacture of intensifying and fluoroscopic screens for medical diagnostic purposes. The reason for this lies in the fact that while several chemicals are naturally fluorescent to x-rays, their fluorescence may be greatly increased by the addition of minute quantities of "activators" and the fact that a special

processing is necessary to make these substances adhere to paper without deterioration of the fluorescent properties. The best fluoroscopic and intensifying x-ray screens are made in this country, although there is a company in Germany and another in England which make screens of a quality approaching that of screens made here.

Slightly removed from the possibility of an ink which might be developed by x-rays is one which might be developed by electron bombardment.

While the literature does not report the use of inks which may be developed by the above methods, it is believed possible that such inks might be used by espionage agents of the higher type in view of the many discoveries made in these fields since the last war.

INDICATORS

While communication by the use of secret inks usually brings to mind a message written entirely in this ink, it is possible to use such a compound as an indicator. Such a use would call for but a small quantity of ink so that

Indications might be made by making a small dot with the ink below or on the letters contained in an innocent message which were to be read by the recipient. In this connection, a secret ink might be used for differentiation purposes in a Baconian cipher either by the method suggested above or by the use of a type-writer equipped with a ribbon so impregnated that one-half contains a secret ink in addition to the visible dye for purposes of differentiation.

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CONCEALMENT OF MESSAGES

NEWSPAPERS

A newspaper can be used to transmit a message by placing light penciled dots or small pinpricks underneath the letters in the newspaper in such a way as to spell out the message. Messages can also be communicated by means of advertisements or similar insertions which would contain messages in some form of code. Notices in the advertising section could be used in this manner. Letters or other documents could be transferred from one person to another through the use of newspapers by concealing them in the newspaper which would be casually left behind to be picked up by a second person.

ENVELOPES

Messages can be concealed on envelopes by writing on the areas to be covered by the postage stamp or by writing on the portion of the envelope which is to be covered by the flap. If the writing is made very fine a considerable amount of information can be transmitted in this way. Envelopes which contain inner linings can be used for concealing messages written on thin pieces of paper inserted between the lining and the envelope. The inner side of the envelope can be used for written messages which would be concealed by the lining.

WRITING ON THIN PAPER

A message can be written on a piece of thin paper which is subsequently rolled up into a very small wad which can be easily concealed. Such a wad of paper can be placed in a small capsule and concealed in the ear or other orifices of the body. Because of the small space occupied by a piece of thin paper the number of places wherein such a paper could be concealed are innumerable. There are, however, certain unusual methods which have been employed at various times and which have come to the attention of the Bureau. Some of the places of concealment are set out below:

Wrapped up with the tobacco leaves in cigars
Hollow false teeth
Glass eyes

Rims of spectacles
Covers of books
Spaces between the spine and cover of books
Toilet articles
Bottles of ink
Articles of food
Soles and heels of shoes
Hollow metal ends of shoelaces
Hollow buttons
Handles of luggage
Under covering materials of luggage
Under labels on luggage
Inside coverings of match boxes
Corks
Containers for thermos bottles
Smoking pipes
Split pencils
Under eraser
Fountain pens and automatic pencils
Hollow nails

PAINTINGS USED FOR CONCEALING PAPER

Papers may be concealed in paintings by placing them in between the painting and the backing of the picture or concealing them in the frame itself. They can also be concealed by placing them on canvas and then painting a picture with oil paint on the top of the paper so as to conceal its presence.

CONCEALMENT IN ART OBJECTS

Messages, documents or other articles can be concealed in art objects such as statues or statuettes of metal or plaster or other articles handled by art dealers. An instance occurred during the World War when plans were made to transmit explosives in statues ordered by Catholic priests, the plan being to remove the explosive after the statue had been imported but before delivery to the priest. This plan was never actually carried out. Several instances have come to the attention of the Bureau wherein Japanese statuettes accidentally broken were found to have contained scraps of newspapers. An examination of these papers, however,

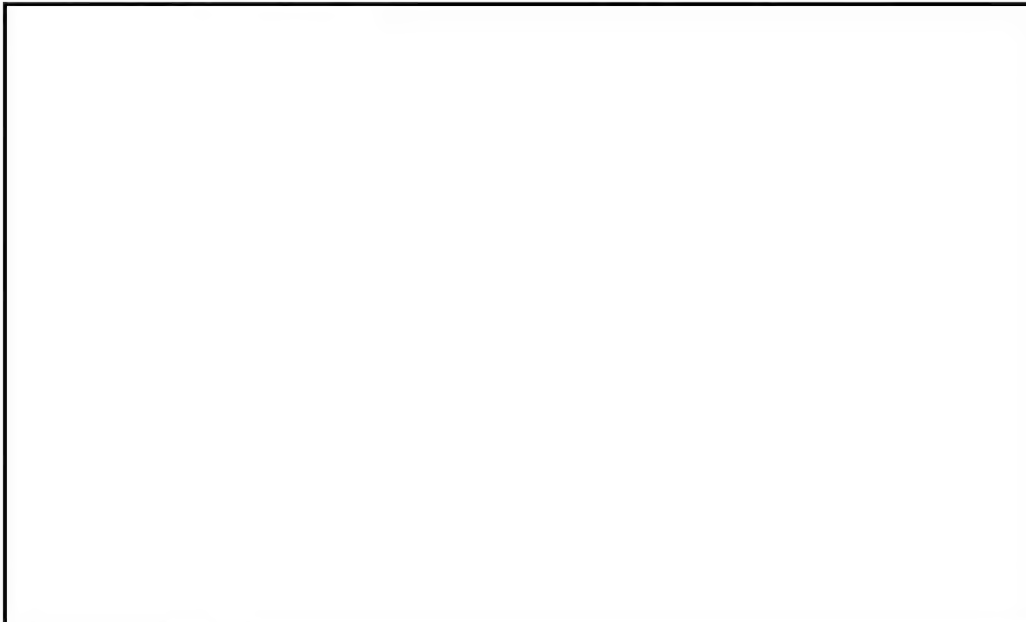
seems to indicate that they had no particular significance but were apparently naive gestures on the part of the individuals making the statuettes.

Suspected objects should be examined very carefully for indications of any crevices or openings which had been subsequently sealed up or any indication that the object might come apart at some point, keeping in mind that an artist might be able to conceal any such indications so as to make it almost undetectable. Rings, bracelets and other articles of jewelry sometimes are made with small compartments capable of holding thin pieces of paper.

SECRET WRITING ON THE HUMAN BODY

Various types of secret ink can be applied to the body so as to carry concealed messages. The method for bringing these out would depend of course upon the nature of the secret ink employed. Writing can also be scratched on the toenails or fingernails and covered with nail polish.

PHOTOGRAPHIC METHODS



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Secret messages or other documents can be photographed on photographic film and left undeveloped. The film can then be concealed in some manner so that if it is found it will automatically be exposed to light and the picture destroyed so that there would be no evidence as to what was originally on the picture.

Documents can be photographed on a greatly reduced scale so that a very large amount of information can be placed upon a small amount of photographic film. Apparatus is on the market which can reproduce a full size newspaper on 16 mm. moving picture film. With special equipment this reduction can be made even greater and still permit written matter to be read later on by magnification or enlargement.



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PAINTED SCRATCHED SURFACES

Messages may be concealed by scratching them on metal or other surfaces and then painting the metal with a paint or enamel so as to cover up the scratches. The recipient can remove the paint or enamel with a suitable solvent and read the message.

There are of course numerous other ways in which papers or articles can be concealed which particularly involve investigative rather than laboratory examination which are not included here. Particular attention in such investigative searches, however, should be given to the clothing of the suspect, his personal belongings, luggage, books and other articles in the room, furniture, draperies, telephones, Venetian blinds and the like.

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SUMMARY OF DATA ON SECRET INKS

AND THE CONCEALMENT OF MESSAGES

1/23/41
Four revised copies of
this summary are being
retained in envelope behind
this file.

This is not the original;
original furnished Mr.
C. W. Tamm in August
1940.
to PC + OHP

11/18/40
PR. file in
80-604
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STRIPING

Liquid reagents are applied by a procedure known as "striping". As the name implies, stripes of the reagent are applied by means of a cotton swab which is wrapped around the end of a wooden applicator, the stripes being about half an inch in width. This process is a compromise between treating the entire sheet and thus perhaps rendering the ink impossible of development and treating a small portion until a developer is found.

Obviously, some care must be given as to the location of the stripes so that they will cross the position where writing is suspected. Although it is generally advocated that the stripes should run diagonally from one corner of the sheet, some judgement must be used depending on the appearance of the suspect document or cloth.

Since striping with liquid reagents may cause the document to be stained, it is advisable to photograph the document before the addition of those reagents which will so alter the appearance. In this manner, an accurate copy of the communication is obtained from which a simulation may be made should it be desired to forward the material to avoid discovery of the interception.

1. The Simple Test.

The reagent, Simple Developer No. 1, is prepared as follows:



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[REDACTED]

This solution is allowed to cool and, after filtering, is ready for use.

Another reagent, Simple Developer No. 2, is prepared as follows:

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[REDACTED]

Developer No. 2 gives a somewhat cleaner and more permanent development on certain types of paper. It has been used for the development of secret messages once their presence has been determined by the use of Simple Developer No. 1.

The cleaning solution is prepared as follows:

[REDACTED]

The Simple Developer is applied to all ordinary letters and to blank sheets of paper in a strip about two inches wide running diagonally across the paper. This is done on both sides of the paper in such a way that the strips cross one another and are not placed one behind the other. Both the inside and the outside of the covering envelope are tested in the same manner. Enclosed envelopes are examined on both sides. The backs of photographs and photographic post cards are tested by making a diagonal strip and if no writing develops the whole of the back is covered with the testing solution in order to avoid indications, after cleaning and drying, that the article has been examined.

The Simple Developer may be applied with a half inch hair brush but the usual practice has been to use small swabs made by twisting absorbent cotton around the end of a wooden applicator.

The best amount of solution to use is that which will wet the paper without leaving an excess of liquid on the surface. This may be attained by repeatedly dipping the swab into the solution and pressing the swab on a piece of blotting paper. This process causes a complete penetration of the swab. In use the swab is dipped into the solution and the excess is removed by rolling and pressing the swab against the upper portion of the bottle.

The strip should be carefully watched for indications of writing. On most papers it will be sufficient to watch until the paper becomes colored. The intensity of this color may be judged by a comparison with the color produced on testing slips, that is, standard samples of various sorts of paper which contain secret writing.

During the course of the day each examiner must test the efficiency of his solution at least twice by its action with writing on the testing slips.

Correspondence papers may be divided into five different classes:

1. Flimsy, poor quality papers such as tissues.
2. Glazed papers often lined off in small squares.
3. Linen faced papers.
4. Bond papers with a soft surface.
5. Bond papers with a hard surface.

In addition to the above all sorts of papers may be expected such as sheets torn from cheap notebooks, wrapping paper, etc.

The Simple Developer reacts quickly on classes 1, 3, and 4, but less quickly on classes 2 and 5. Papers of these classes may require a second application of the testing solution.

With the Simple Developer secret inks may be divided into two classes:

1. The greasy type
2. The nongreasy type such as aqueous solutions of

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On most classes of papers the greasy type of ink gives a development known as a "resist", that is, the writing appears lighter than the background. On papers of class 2, the greasy types of ink develop normally, that is, the writing is much darker than the background. On papers of class 5, the greasy types of ink develop normally but very slowly and it is advisable in those cases where any of the above-mentioned effects are noted to apply the testing solution two or three times at intervals of fifteen seconds, and then set the paper aside for some minutes in order to allow sufficient time for the solution to act.

With inks of class 2, the development is normal, that is, dark brown against a lighter background, except in those cases [redacted] with the ink to produce a colorless or a colored compound.

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THE TEST FOR DAMPENING

The first test for Dampening consisted in making a diagonal strip across the paper with a swab moistened with distilled water. The paper was allowed to dry and then a strip was made across the diagonal with the Simple Developer. If the paper had not been dampened, the water strip showed up as a very pronounced positive. If the paper had been dampened, there was no marked contrast between the color of the water strip and the color of the surface near the strip. (This method was later improved to such an extent that the chances of a dampened paper escaping detection are practically nil.)

In the new test for Dampening, two strips are made diagonally across the paper. One strip is made with water and the second strip is made with a solution composed of [redacted]

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This second solution must be protected from the air and from contact with water. The strips should be at least one inch wide and should be separated from each other by at least one inch. The paper is hung up to dry for at least two hours and it then should be examined under good light. The water strip may be plainly visible, indistinct, or not visible at all. The alcohol strip will ordinarily be invisible.

If, on holding the paper horizontally in the light, one can see that the surface glaze of the paper has been removed in the water strip, one may assume that the paper has not been dampened. There may be cockling or shrinking but that has no significance.

A strip is then made across both diagonals with the Simple Developer. If the paper has not been dampened, the water strip will show a strong positive; the alcohol strip will show no more than a weak positive. If the paper has been dampened the water strip shows a faint positive which gradually fades into the background; the alcohol strip usually shows a resist, that is, the alcohol strip will be lighter than the background.

The cause of this resist is supposed to be due to the solvent action of the acid-alcohol mixture on the sizing materials of the paper. This solution comes to the surface, the solvent evaporates and leaves on the surface a deposit of the sizing materials which prevents or retards

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The Dampening Test appears to work best upon papers which have been sized with gelatine; its accuracy on papers sized with other materials is uncertain.

Most of the errors involved in this test are errors which indicate that the paper has been dampened when actually it has not been dampened. Hence no letters which have been dampened will escape detection, but many which have not been dampened will appear to require the Specific Tests. Much time must be devoted to the training of the examiners in this test. Papers of all sorts and both dampened and undampened must be used in their instruction. Rosin sized papers even though undampened may show a resist with the acid-alcohol strip. Excellent qualities of gelatine sized papers also often appear to have been dampened when such is actually not the fact.

SIMULATION OF SECRET WRITING

The Simple Test will often reveal indications which at first sight will appear to be secret writing, but which actually are due to other causes. Certain of the major tests will also reveal such indications. Letters showing such apparent secret writing must undergo further examination.

The causes of apparent secret writing will usually be found among the following: grease spots, the presence of mechanical wood pulp in the paper, the presence of mineral salts in the paper, the previous examination of the letter in some other laboratory, the appearance of the visible writing of one side of the paper upon the other side due to the wetting of the paper by a strip of developer, offsets of the visible writing, and scratchings due to some peculiarity of penmanship.

If a letter has been examined by one [redacted] methods and cleaned in another laboratory, this fact may be proved by spotting the paper with an acidified solution of starch and hydrogen peroxide. [redacted]

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[redacted] If the apparent secret writing is due to the visible writing on one side of the paper appearing in the wet strips, this may easily be proved by the use of a mirror.

An offset is due to the absorption by a piece of paper of material from the ink of another piece of paper with which it is in close contact. The writing in an offset is the mirror image of the visible writing which caused it. The following are some of the common types of offsets:

(a) Writing inks which have been thickened by the addition of gums very often leave an offset in the same color upon the opposite sheet.

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[redacted]

(c) The testing and cleaning fluids used in some previous examination of the liquid, when improperly dried, may cause the formation of an offset.

(d) Offsets are easily produced if a letter written in indelible ink or with an indelible pencil, both of which contain a basic dyestuff like methyl violet, becomes damp.

(e) Offsets are often caused by the use of blotting papers of poor quality. Ink may remain on such blotters for quite a period of time and then when the blotter is placed upon a paper this ink is transferred to the paper. This sort of offset is not reversed.

(f) When a letter is placed in a copy press it may take up impressions, either visible or invisible, of previous letters. These offsets also are not reversed.

(g) If an untuned photograph is enclosed in a letter an offset of the writing of the letter may be formed on the back of the photograph due to a chemical reaction between one or more of the constituents of the ink and the silver salts in the photograph. If the letter and photograph are enclosed in a very thin envelope the action of light on the untuned paper may produce a print of the writing, lighter on a darker background, as in the printing from a negative in the ordinary way.

(h) Offsets may also be produced by chemical reactions between constituents of the ink and dyestuffs used to color the paper.

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Offsets should be examined most carefully because it is possible that a differential ink may cause an offset when the ordinary visible ink will not.

Other causes of simulated secret writing may be found in peculiarities of penmanship. Among these may be mentioned disturbance of the surface of the paper due to a ring on the writer's finger, due to a fingernail, but most often due to the manner in which the writer holds the pen. Certain types of pens have very wide shoulders and some writers hold their pens in such a position that the shoulders scratch the surface of the paper. Usually there is no ink on the shoulder, but the scratch will be revealed by the Simple Test and if the paper has not been dampened, it may be revealed by other tests. The revealed scratches will bear a definite relationship to the visible text.

When letters are written on pads of paper, an impression of the writing is often made on one or more of the sheets below, especially if much pressure is used and if the writing is done with a hard pencil. Such indentations

may often be read by means of light of grazing incidence, and sometimes by brushing over the surface of the paper with a powder [redacted] The powder is rubbed in lightly with the finger, with the paper placed upon a moderately hard surface. The indented writing appears light against a dark background.

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GROUP DEVELOPERS

If development is not successful with the above general developers, the search for a proper reactant proceeds by the application of reagents which will react with large groups of chemical compounds. The action of such group reagents is based on such properties of the ink as oxidizing or reducing power, or the presence of a certain molecular grouping which may be attached to form a colored compound.

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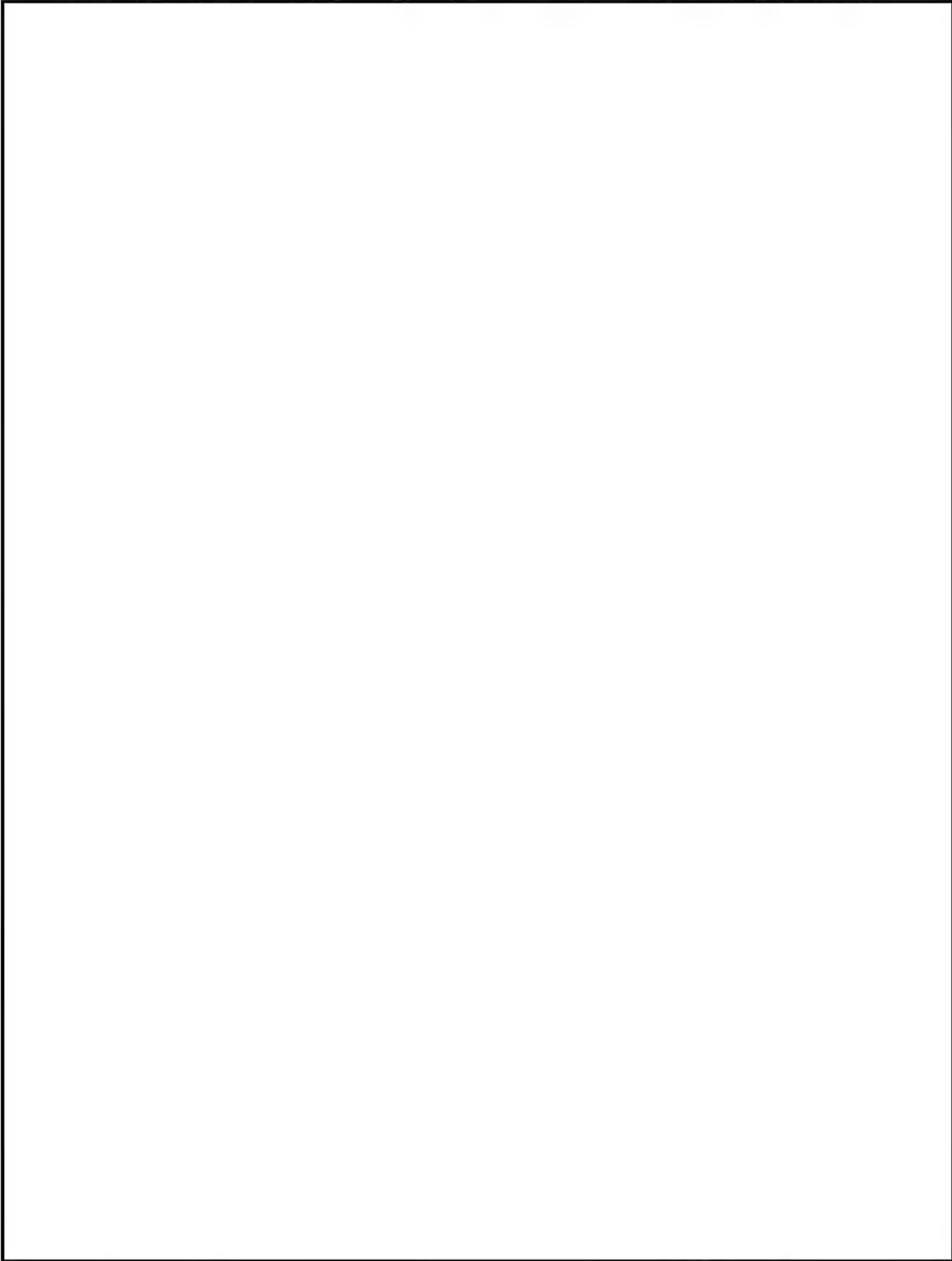
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This method of development detects any disturbance which has been set up upon the surface of the paper by drawing a pen dipped into water over it. Thus, writing in tap or distilled water is readily revealed.

This test will therefore reveal writing in any one of the enemy secret inks, provided the paper has not been damped after writing. However on some papers development takes place even when the paper has been damped after writing, therefore the test is included among the special tests.

MISCELLANEOUS DEVELOPERS

The general methods of development so far given represent the best methods presently available in the Bureau. There are several other general developers which have been suggested, however, and these are mentioned here for such value as they may have.



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COMPOUNDS REPORTED AS SECRET INKS

The inks listed below have been divided into two groups. Table I is an alphabetical tabulation of commercially pure chemicals which have been used alone or in conjunction with other pure chemicals to form writing fluids. Obviously, such inks would only be used by persons with some knowledge of chemistry or by those who have been furnished such compounds for a specific use. Table II lists those substances which are either mixtures of various chemicals for commercial sale or mixtures of indefinite proportions, for example soap and biological fluids. Into this category would fall those inks commonly used by prisoners and by those not too conversant with this method of communication. This last table gives an indication of the magnitude of readily available substances which may be used as secret inks.

It should be noted that the tables have been compiled from available literature on the subject and that in many cases the results have not been verified by laboratory experimentation in this Bureau. In many cases, the compounds are designated in the literature by obsolete or nontechnical names which have been changed to the modern nomenclature where possible. Development of any of these inks by the general developers, [redacted] is not given in the tables, nor is development by any of the group developers, such as acids, alkalies, oxidizing or reducing agents, given except in those instances where development by such a reagent is specifically indicated in the literature.

While many of the compounds listed above may seem susceptible to the simplest forms of development, they are nevertheless included because it is believed that even these might be used as inks by criminals or lesser espionage agents.

As examples of possible ink reactions suggested by scientific advances since the World War, there might be mentioned the formation of a fugitive or permanent dye, the formation of a colored product by the action of reagents in common use in analytical chemistry, both organic and inorganic, or the formation of a colored product by the reactions of chemical indicators whose use is now so widespread in the biological sciences. In addition, little mention is made in the above tables of [redacted] although much progress has been made recently in this field.

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LAUNDRY MARKS

Cloth as well as paper can be used for carrying messages written with secret inks. The same method can be used as that used by modern laundries and dry cleaners, many of whom have adopted an invisible system of marking clothing for identification purposes. Invisible inks are commercially available for this purpose. They are usually of a highly fluorescent nature so that the laundry examinations are carried out in ultraviolet or violet light. Such inks retain their visibility in ultraviolet light after the clothing has been washed.

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Practically no mention is made in the literature of substances which may be developed by x-rays. Such development might be by reason of the opacity of the ink to x-rays so that soft rays might differentiate between the writing and the background on a photographic plate. Development might also be obtained by fluorescence similar to that found in the ultraviolet. Material on x-ray fluorescence is limited because most of the discoveries in this field are trade secrets of very few companies engaged in the manufacture of intensifying and fluoroscopic screens for medical diagnostic purposes. The reason for this lies in the fact that while several chemicals are naturally fluorescent to x-rays, their fluorescence may be greatly increased by the addition of minute quantities of "activators" and the fact that a special processing is necessary to make these substances adhere to paper without deterioration of the fluorescent properties. The best fluoroscopic and intensifying x-ray screens are made in this country, although there is a company in Germany and another in England which make screens of a quality approaching that of screens made here.

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While communication by the use of secret inks usually brings to mind a message written entirely in this ink, it is possible to use such a compound as an indicator. Such a use would call for but a small quantity of ink so that

Indications might be made by making a small dot with the ink below or on the letters contained in an innocent message which were to be read by the recipient. In this connection, a secret ink might be used for differentiation purposes in a Baconian cipher either by the method suggested above or by the use of a typewriter equipped with a ribbon so impregnated that one-half contains a secret ink in addition to the visible dye for purposes of differentiation.

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WRITING ON THIN PAPER

A message can be written on a piece of thin paper which is subsequently rolled up into a very small wad which can be easily concealed. Such a wad of paper can be placed in a small capsule and concealed in the ear or other orifices of the body. Because of the small space occupied by a piece of thin paper the number of places wherein such a paper could be concealed are innumerable. There are, however, certain unusual methods which have been employed at various times and which have come to the attention of the Bureau. Some of the places of concealment are set out below:

Wrapped up with the tobacco leaves in cigars
Hollow false teeth
Glass eyes

- Rims of spectacles
- Covers of books
- Spaces between the spine and cover of books
- Toilet articles
- Bottles of ink
- Articles of food
- Soles and heels of shoes
- Hollow metal ends of shoelaces
- Hollow buttons
- Handles of luggage
- Under covering materials of luggage
- Under labels on luggage
- Inside coverings of match boxes
- Corks
- Containers for thermos bottles
- Smoking pipes
- Split pencils
- Under eraser
- Fountain pens and automatic pencils
- Hollow nails

PAINTINGS USED FOR CONCEALING PAPER

Papers may be concealed in paintings by placing them in between the painting and the backing of the picture or concealing them in the frame itself. They can also be concealed by placing them on canvas and then painting a picture with oil paint on the top of the paper so as to conceal its presence.

CONCEALMENT IN ART OBJECTS

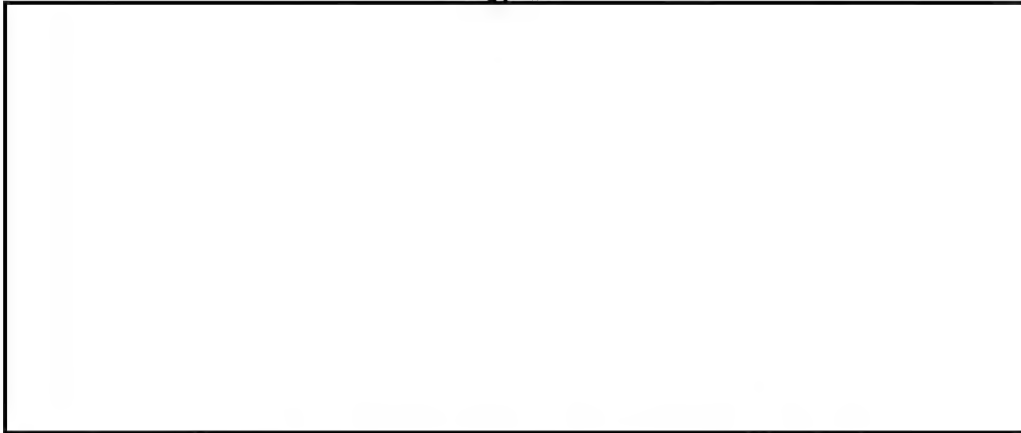
Messages, documents or other articles can be concealed in art objects such as statues or statuettes of metal or plaster or other articles handled by art dealers. An instance occurred during the World War when plans were made to transmit explosives in statues ordered by Catholic priests, the plan being to remove the explosive after the statue had been imported but before delivery to the priest. This plan was never actually carried out. Several instances have come to the attention of the Bureau wherein Japanese statuettes accidentally broken were found to have contained scraps of newspapers. An examination of these papers, however, seems to indicate that they had no particular significance but were apparently naive gestures on the part of the individuals making the statuettes.

Suspected objects should be examined very carefully for indications of any crevices or openings which had been subsequently sealed up or any indication that the object might come apart at some point, keeping in mind that an artist might be able to conceal any such indications so as to make it almost undetectable. Rings, bracelets and other articles of jewelry sometimes are made with small compartments capable of holding thin pieces of paper.

SECRET WRITING ON THE HUMAN BODY

Various types of secret ink can be applied to the body so as to carry concealed messages. The method for bringing these out would depend of course upon the nature of the secret ink employed. Writing can also be scratched on the toenails or fingernails and covered with nail polish.

b3 Per CIA
b7E



Secret messages or other documents can be photographed on photographic film and left undeveloped. The film can then be concealed in some manner so that if it is found it will automatically be exposed to light and the picture destroyed so that there would be no evidence as to what was originally on the picture.

Documents can be photographed on a greatly reduced scale so that a very large amount of information can be placed upon a small amount of photographic film. Apparatus is on the market which can reproduce a full size newspaper on 16 mm. moving picture film. With special equipment this reduction can be made even greater and still permit written matter to be read later on by magnification or enlargement.



This film which is transparent can then be used to cover some other photograph as though it were acting as a protective cover.

PAINTED SCRATCHED SURFACES

Messages may be concealed by scratching them on metal or other surfaces and then painting the metal with a paint or enamel so as to cover up the scratches. The recipient can remove the paint or enamel with a suitable solvent and read the message.

There are of course numerous other ways in which papers or articles can be concealed which particularly involve investigative rather than laboratory examination which are not included here. Particular attention in such investigative searches, however, should be given to the clothing of the suspect, his personal belongings, luggage, books and other articles in the room, furniture, draperies, telephones, Venetian blinds and the like.

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OFFICE OF DIRECTOR
FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

October 11, 1940

Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Coffey _____
Mr. Egan _____
Mr. Glavin _____
Mr. Harbo _____
Mr. McIntire _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Quinn Tamm _____
Tele. Room _____
Mr. Tracy _____
Miss Gandy _____

Arrangements were made a few months ago for Mr. Coffey to confer with him. The attached letter was received by Mr. Coffey from

will be in the United States about October 18th. Mr. Coffey will make arrangements to confer with

st 10/14 will do this EPG

EPG

ENCLOSURE

RECORDED
&
INDEXED

80-604-67X
FEDERAL BUREAU OF INVESTIGATION
5 NOV 25 1940
U.S. DEPARTMENT OF JUSTICE
TOLSON
EVE

b7D

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a

W

t

DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF

November 7, 1940

STRICTLY CONFIDENTIAL

MEMORANDUM FOR MR. LADD

Re: [redacted]
Secret Inks (80-604).
Cryptography (80-612).

During the visit last week of [redacted]

[redacted] I conferred at considerable
length with [redacted] on matters of a Laboratory nature.

[redacted] During these conferences, we were
joined at times by Messrs. Pickering, Appel, and Napier of the
Laboratory, as well as Mr. Martin of my office.

During these conferences we discussed at considerable
length [redacted]

[redacted] was new to us in the Laboratory.

Mr. Tolson	✓
Mr. Clegg	✓
Mr. E. A. Tamm	✓
Mr. Foxworth	.....
Mr. Nathan	.....
Mr. Ladd	.....
Mr. Egan	.....
Mr. Glavin	.....
Mr. Nichols	.....
Mr. Hendon	.....
Mr. Rosen	.....
Mr. Tracy	.....
Miss Gandy	.....

b7D
b7E

RECORDED COPY FILED IN 80-612-43

b7D

80-604-76
FEDERAL BUREAU OF INVESTIGATION
5 NOV 23 1940
U. S. DEPARTMENT OF JUSTICE
TOLSON CLEGG TAMM LADD FIVE

Memo Mr. Ladd
Page 2

[REDACTED]

b7D

[REDACTED] For this purpose, we prepared
for him [REDACTED] He will have these
[REDACTED] and returned to the FBI.

An extended discussion was had concerning [REDACTED]

[REDACTED]
[REDACTED] There was also discussed [REDACTED]

[REDACTED] The only new
development brought forth in this discussion was [REDACTED]

b3 Per CIA
b7D
b7E

[REDACTED]

[REDACTED] We in the Laboratory furnished [REDACTED]

[REDACTED]

With regard [REDACTED]

b7D

[REDACTED]

[REDACTED]

b7D

Memo Mr. Ladd
Page 3

[REDACTED]

b7D

[REDACTED] I immediately arranged for the purchase of a sample of "Pyramidon" and Mr. Pickering is working with it in the Laboratory and seeking its complementary detector.

We discussed [REDACTED] The only new development was the statement [REDACTED]

b7D

[REDACTED]

I requested [REDACTED]

[REDACTED]

[REDACTED] was particularly interested [REDACTED]

b7D

[REDACTED]

[REDACTED] All these things were shown to him.
[REDACTED] was also particularly interested [REDACTED]

[REDACTED]

Memo Mr. Ladd
Page 4

[REDACTED]

b7D

During these conversations I was also informed that the present [REDACTED]

b7D

[REDACTED]
[REDACTED] It was further inferred that [REDACTED]
[REDACTED] These gentlemen again urged that an FBI representative visit [REDACTED]
and [REDACTED]
[REDACTED]

Respectfully,

E P Coffey
E. P. Coffey.

DIRECTOR

b6
b7C

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF
80-604

November 30, 1940

MEMORANDUM FOR MR. LADD *sh*

b3 Per CIA
b7D
b7E



Respectfully,

EPC
E. P. Coffey.

ENOLD *ca*
sub

RECORDED
W

80-604-77
FEDERAL BUREAU OF INVESTIGATION
3 DEC 4 1940
U.S. DEPARTMENT OF JUSTICE
LADD *W*
FIVE

~~VERY SECRET~~

*Does this differ
from ours.*

b3 Per CIA
b7E

Prepare two solutions A and B.

Mix A and B. Total volume about 170 c.c. Allow the solution to stand for some hours. The solution may require adjustment as follows:-

With a ball pointed pen write a message [redacted] a writing paper of the ordinary type, avoiding scratching. A Bond or Bank paper may be used. Allow the writing to dry for an hour or so. Then brush over the special solution using a small camel hair brush. [redacted] writing should develop in under a minute and the background remain relatively clear. As the writing develops blot off the excess of developer. If the writing develops very slowly, add say up to 10% of water to the developing solution.

b3 Per CIA
b7E

To clear off obvious traces of testing dab the surface of the paper with cotton wool [redacted] solution, and blot thoroughly. This must be done carefully to avoid undue running of the ordinary ink.

b3 Per CIA
b7E

It is advisable to try this development on various types of paper and if necessary adjust the solution to give a satisfactory average result. It will be found that development takes place more quickly on soft absorbent papers than on a Bond paper.

The brush must be kept dry. It can be kept fitted through a cork into a flask with lumps of anhydrous CaCl_2 .

The stock of special solution should be kept apart from that in daily use, and this must be carefully stoppered when not in use.

80-604-77

b7D
b7E

EPC:AF

November 25, 1940

~~STRICTLY CONFIDENTIAL~~

MEMORANDUM FOR MR. LADD

Re:

[redacted] After dinner they furnished me with considerable data which they had obtained [redacted] on matters which I had discussed with them on previous visits. These data are being routed through the Bureau by separate memoranda and consist of:

b3	Per	CIA
b7D		
b7E		

... ..

RECEIVED & INDEXED

RECEIVED & INDEXED
1952-12-17
17-12-52
All of this is extremely interesting and valuable information and I thanked these gentlemen in the name of the Director. They, in turn, requested certain information as follows:

b7D

12/3/40
74-9

Memo Mr. Ladd
Page 2

[Redacted]

In view of the excellent cooperation from these gentlemen
to date I recommend that they be furnished [Redacted]

[Redacted]

These men stated they would be in Washington until Tuesday
noon, November 26, when they go to New York, after which [Redacted]

[Redacted]

Respectfully,

E P Coffey

E. P. Coffey.

11/27/40.
Furnish to
b7D
EPC

OK.
b.

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF

December 4, 1940

MEMORANDUM FOR MR. LADD *DMF*

~~Re:~~ Indented Writing

As indicated in my memorandum of November
25, 1940, [redacted]
furnished me [redacted]

[redacted] I have had this
reviewed by all members of the document staff. It
has been found to be sound and interesting but not
superior to present methods used in the Bureau.
It will be kept available for future reference.

Respectfully,

EPC
E. P. Coffey.

INCL 6

RECORDED & INDEXED

82-4-79
FEDERAL BUREAU OF INVESTIGATION
6 DEC 5 1940
U. S. DEPARTMENT OF JUSTICE
LADD

b7D

RECORDED COPY FILED IN 82-4-79

JOHN J. GARHOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF

November 18, 1940

~~STRICTLY CONFIDENTIAL~~

MEMORANDUM FOR MR. LADD

Re: New German Secret Ink

In my memorandum of November 7, 1940, I referred
to information given me by [redacted]

b7D

[redacted] We have obtained some of this
chemical in the Laboratory and I have had Mr. Pickering
experiment with it. He has developed a rather extraordinary
secret ink.

Believing the same would be of interest to the
Director, I have had samples of the same prepared on the
attached card, the writing appearing at the points indicated
by the arrows. An examination of these places fails to
show any hint of secret writing. I am also furnishing a
small quantity of the developer, that is, in two vials,
the contents of which are poured together and used as a
developer, and if the same is painted over one of the
indicated areas the invisible writing immediately appears.

It will also be of interest to know that previous
information on this ink has come to the attention of the
Bureau, being contained in a summary memorandum furnished to
the Bureau by G-2 six or eight months ago. G-2 furnished
no information as to who was using it. The first time we
heard of it in actual practice was when [redacted] mentioned
it.

b7D

ENCLOSED & INDEXED

Respectfully,

E. P. Coffey

80-604-80
FEDERAL BUREAU OF INVESTIGATION
U. S. DEPARTMENT OF JUSTICE
NOV 18 1940
RECEIVED
LADD
EPC

*Vials of
developing solution
& returned in lab.
Formulas confirmed in
80-604-56. [initials]*

Very interesting

1 ENCL. 0

80-604



Dec. 16, 1940

F.B.I. Headquarters,
Att. Chief Chemist,

Dear sir:

Somewhere I read that the F.B.I, sometimes
uses a dye which stains the skin and cannot be washed
off. (In preparing packages of ransom money)

If this is not a secret formula I would like to
know where I can secure samples of this dye to use in
perfecting a make-up process.

Any information you will give me on this subject
will be highly appreciated.

Very truly yours,

Jack Jevne
Jack Jevne

Room 347
New Administration Building

RECORDED & INDEXED

ack
12/20/40
80-604-81
FEDERAL BUREAU OF INVESTIGATION
6 DEC 21 1940
U. S. DEPARTMENT OF JUSTICE
LAB

JJS:GDC
80-604-81

RECORDED

December 30, 1940

Mr. Jack Jeune
Metro-Goldwyn-Mayer Pictures
Room 347
New Administration Building
Culver City, California

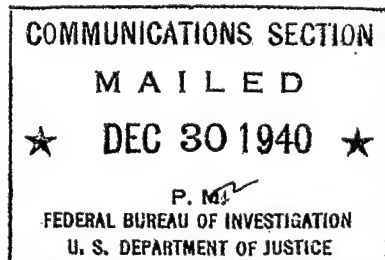
Dear Mr. Jeune:

Your communication dated December 16, 1940, has been received and although I would like to be of assistance I must advise that the information you desire is confidential and limited in distribution to duly constituted law enforcement officials.

Sincerely yours,

John Edgar Hoover
Director

Mr. Tolson _____
Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Egan _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____



DEC 30 3 49 PM '40
RECEIVED-ROOM 5640
F B I
U. S. DEPT. OF JUSTICE

GDC ✓ *[Signature]* *[Signature]*



HOWARD P. SUTTON
SUPERINTENDENT

DEPARTMENT OF PUBLIC SAFETY
BUREAU OF POLICE
PHILADELPHIA

DETECTIVE DIVISION

January 10th 1941



GEORGE F. RICHARDSON
INSPECTOR OF DETECTIVES

523
1/14
330

Technical Laboratory
United States Dept. of Justice.
Federal Bureau of Investigation.

Dear Sirs;

Kindly advise me concerning the name or description of a dye or stain, that could be applied to money or material etc, so that, upon contact with the fingers would leave a stain that could not be washed off for several days.

This information is to be used to cause the arrest of sneak thieves, and any help from your department would be greatly appreciated.

Respectfully Yours;

Harry Morris #40
Detective # 40
2nd Detective Division Headquarters
Philadelphia Police.
1209 Pine St Phila.

RECORDED
&
INDEXED

80-604-82
FEDERAL BUREAU OF INVESTIGATION
5 JAN 13 1941
U.S. DEPARTMENT OF JUSTICE

Ans.
1-23-41
HCF

Secret 2-10-41

HCF:IG

January 23, 1941

RECORDED 80-604-82

Mr. Howard P. Sutton
Superintendent of Police
Philadelphia, Pennsylvania

Attention: Detective Harry J. Morris

My dear Superintendent:

Reference is made to your letter of January 10, 1941 requesting information concerning a dyestuff which could be applied to money or some similar material and which would stain the fingers of a person when it was touched.

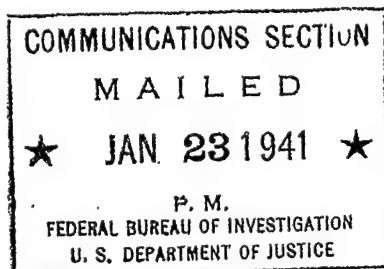
Please be advised that a number of materials may be used for this purpose, among them being malachite green, basic fuchsine and silver nitrate. All of these materials are applied in the same way, namely, by dusting the object with the finely powdered chemical. Malachite green will leave a green stain upon the fingers, basic fuchsine will leave a red stain particularly when washed with soap and water and silver nitrate will color the skin with a dark brown or black stain.

Assuring you of my desire to cooperate in matters of mutual interest, I am

Sincerely yours,

John Edgar Hoover
Director

Mr. Tolson _____
Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Egan _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____



HEL
91

(C O P Y)

HALL
LABORATORIES FOR LIGHTING RESEARCH

GEORGE LAWRENCE HALL 739 BOYLSTON STREET BOSTON, MASS. TEL. KENMORE 8557

January 18, 1941

Dear Sir:

We would like to bring to your attention and consideration the Hall UVICHECK System, a system designed to provide a protection and secrecy important to passing and checking individuals entering and leaving plants engaged in defense work.

By the combination of an invisible Black Light source and invisible marking inks, absolute assurance is provided that any attempt to gate-crash will be instantly detected. These special inks are not only invisible, but are non-transferable, perspiration proof, and will resist washing.

The system is positive and simple in operation. The back of the hand, or forehead, is stamped with a rubber stamp inked with the invisible ink, which leaves no visible mark which may be copied or otherwise counterfeited. Under the Black Light the invisible mark becomes visible.

The hazard imposed by badges, buttons or paper passes which may be lost or stolen is eliminated by this system. Permanent or semi-permanent inks may be furnished, and a means of eradicating the mark when an individual leaves the premises may be provided.

This system has been in use for other purposes for over two years, during which time hundreds of thousands of persons have been identified by this means. There is nothing injurious about either the inks or the light source.

For further information regarding this system, address the Hall Laboratories for Lighting Research, 739 Boylston Street, Boston, Massachusetts.

Respectfully yours,

(C O P Y)

HALL
LABORATORIES FOR LIGHTING RESEARCH

GEORGE LAWRENCE HALL

739 BOYLSTON STREET

BOSTON, MASS.

TEL. KENMORE 8557

January 18, 1941

Officer in Charge
Federal Bureau of Investigation
U. S. Department of Justice
Post Office Building
Boston, Massachusetts

Dear Sir:

I am enclosing a form letter which I am about to send to firms engaged in defense work. As I feel that your organization should be interested in a system of this sort, I would like to suggest that you or someone representing you come to my laboratory and see a demonstration. As this is an alternating current device, it is not feasible to take it down town.

The enclosure, I believe, is self-explanatory. The matter of adapting the system to the varying conditions existing at different plants is a problem that perhaps you would be in-

Post Office Box #2344
Boston, Massachusetts

January 23, 1941

Director
Federal Bureau of Investigation
Washington, D. C.

Dear Sir:

I am attaching hereto copies of a letter received from George Lawrence Hall, Hall Laboratories for Lighting Research, 739 Boylston Street, Boston, Mass., together with copies of a form letter also received from this individual.

If it is possible to determine from the information contained therein whether or not the Bureau is interested in this matter or desires any further information concerning same, I will appreciate being so advised.

Very truly yours,

V. W. PETERSON
Special Agent in Charge

VWP/jf
Enclosures

RECORDED & INDEXED

80-604-83

FEDERAL BUREAU OF INVESTIGATION
JAN 29 1941
U. S. DEPARTMENT OF JUSTICE

FIVE

ORIGINAL FILED IN 80-604-46

RECORDED

TDB:AF
80-604-83

~~80-631-40~~

February 6, 1941

Special Agent in Charge
Boston, Massachusetts

Dear Sir:

Reference is made to your letter dated January 23, 1941, transmitting copies of a communication which your office received from George Lawrence Hall, Hall Laboratories for Lighting Research, 739 Boylston Street, Boston, Massachusetts, together with copies of a form letter submitted by that individual.

You are advised that the Bureau is not interested to the point of sending a Special Agent to witness a demonstration of the equipment mentioned in the above letter. The Bureau would be interested in receiving any illustrations or descriptions that Mr. Hall or the Hall Laboratories may forward to you without solicitation.

Very truly yours,

John Edgar Hoover
Director

Mr. Tolson _____
Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Egan _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____

ORIGINAL FILED IN 80-631-40

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

January 18, 1941

MEMORANDUM FOR MR. LADD

Attached hereto is a letter to [redacted]
[redacted] over my signature, in answer
to the letter I recently received from him.

Respectfully,

E P Coffey
E. P. Coffey.

b7D
b7E

ENCLOSURE

RECORDED & INDEXED

80-604-84
FEDERAL BUREAU OF INVESTIGATION
4 JAN 22 1941
TOLSON
LADD

RECORDED COPY FILED IN

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF

January 13, 1941

Mr. Tolson.....
Mr. Clegg.....
Mr. E. A. Tamm.....
Mr. Foxworth.....
Mr. Nathan.....
Mr. Ladd.....
Mr. Egan.....
Mr. Glavin.....
Mr. Nichols.....
Mr. Hendon.....
Mr. Rosen.....
Mr. Tracy.....
Gandy.....

MEMORANDUM FOR MR. LADD

Re: [REDACTED]

[REDACTED] in his attached letter of January 10, 1941, inquires whether I could go to [REDACTED] to confer with [REDACTED] there. He suggests that in addition to [REDACTED] discussions other things of interest in the [REDACTED] would be discussed. I think the trip would be well worth while.

In the same letter, [REDACTED] advises that the memorandum which the Bureau furnished him [REDACTED]

[REDACTED] He inquires whether two copies more can be furnished. I am having the copies made in the event the Bureau approves giving him two more.

Respectfully,

RECORDED & INDEXED
E. P. Coffey.

ADDENDUM: 1-13-41 - I believe it would be highly desirable for Mr. Coffey to make the trip to [REDACTED] for the purpose of studying not only [REDACTED] but also to look into their [REDACTED]

1 ENCL. FM
P
[Signature]

DML
[Signature]

80-604-84
JAN 22 1941
TOLSON
LADD
[Signature]
1-15-41

b7D
b7E

RECORDED COPY FILED IN 80-606-134

b7D

b7D

RECORDED

604-84

January 18, 1941



b7D

Dear



I have read your letter of January 10th with much interest. I am afraid that it will be impossible for me to go to [redacted] to look over [redacted] inasmuch as present conditions are not such that I can leave.

We would be very glad to have [redacted] visit the Bureau and consult with various individuals here who might assist him in his present problem.

I am having additional copies made of the [redacted] which was previously furnished

b7D
b7E

60-606-124

107D
FILED

Federal Bureau of Investigation
United States Department of Justice

Chicago, Illinois
January 30, 1941

(D)
Director
Federal Bureau of Investigation
Washington, D. C.

Re: SECRET INKS

Dear Sir

Further reference is made to Bureau letter of
July 29, 1940 (80-604).

I am transmitting herewith a copy of a letter re-
ceived from W. C. Yackel, Superintendent of
Police, Kenilworth, Illinois, in which he furnishes
information concerning Mrs. Helen Norrington.

In view of the information contained in his letter
no further action will be taken by this Office and
this matter will be considered closed.

Very truly yours

W. S. Devereaux
W. S. DEVEREAUX *a.k.a.*
Special Agent in Charge

AHJ:IAJ
80-96
Encl.

RECORDED & INDEXED

ENCL 6

80-604-85
FEDERAL BUREAU OF INVESTIGATION
6 FEB 1 1941
U. S. DEPARTMENT OF JUSTICE
ONE

POLICE DEPARTMENT

Kenilworth, Ill.

January 20, 1941

W. S. Devereaux
Special Agent in Charge
Federal Bureau of Investigation
Chicago, Illinois

Dear Sir

Re: File No. 80-96

This is to acknowledge receipt of your letter of December 23, 1940, referring to Mrs. Helen Norrington, 124 Robsart Road, Kenilworth. We have not been able to contact Mrs. Norrington to confirm certain information previously obtained.

Mrs. Norrington came to us some time last summer stating that she knew of certain chemicals which would make ink-writing disappear and appear at will, but was reluctant to say what they were. We advised her to take up the subject with your office or the Secret Service inasmuch as she mentioned its possible use in connection with counterfeiting.

Several months later she dropped into our station and gave us a demonstration with two liquids. They failed to react in accordance with her statements and we decided to forget the matter. However, we had a third discussion with her in the latter part of October at which time she was in an extremely nervous condition and apparently suffered from hallucinations that she was being threatened by gangsters, dictators, and others. During this discussion she told us that the liquids being used were zonite and alcohol. Our experience with these liquids leads us to believe that they were the "chemicals" referred to.

With best regards, I am

Yours very truly,

/s/ W. C. Yackel

Supt. of Police

80-604-85

" " INCLOSURE "A"

A



...of the ...

...WHO?

THE NEXT
PRESIDENT

to lead us

PROSPERITY
PEACE AND
DEMOCRACY

FIND OUT FOR YOURSELF

...K.A.H.

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICELaboratory Work Sheet

Re: Invisible pictures and detector
paper submitted by H. Kahan, Naval
Architect, Office of the Supervisor
of Shipbuilding, USN, 11 Broadway,
New York, N. Y.
Examination requested by: Bureau

Lab. # 44315 (Gen.)
44316 (Doc.)
File # 60-604-86

Date of reference communication: Let. 2/19/41

Date blocked: 2/27/41 bet

Examination requested: Document-Chemical (General Chemical)

Result of examination:

Examination by: Appel
Freimuth

Specimens submitted for examination

There were submitted two (2) pictures, invisible, and two specimens of
detector paper, latter, by process of being dipped in water and drawn over
invisible drawing will bring out the drawing.

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

WASHINGTON, D. C.

OFFICIAL BUSINESS

PERMIT TO USE PRIVATE USE TO AVOID
PENALTY OF POSTAGE, \$300

From H. H. Ham Asst. Naval Architect

NYC

Let to file 2-27-41

NYC

Prop. for
the can be used
for the
purpose of
designing a
ship

80-604

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF
80-604

February 3, 1941

MEMORANDUM FOR MR. LADD

Re: Symbol to Designate
Use of Secret Ink

Mr. H. H. Clegg advises me that [redacted]
have discovered that [redacted]

Care should be exercised that the above is not
taken as final [redacted]
[redacted]
should be considered.

Respectfully,

E. P. Coffey
E. P. Coffey.

b7D

RECORDED

80-604-854
FEDERAL BUREAU OF INVESTIGATION
6 APR 9 1941
U. S. DEPARTMENT OF JUSTICE

5
2/26
11

19 February 1941

From: H. Kahan, Assistant Naval Architect,
Office of the Supervisor of Shipbldg., USN, (2)
11 Broadway, New York, N. Y.

To: Federal Bureau of Investigation,
Washington, D. C.

Subject: Invisible Drawing; For Forwarding of
Confidential Data.

Inclosures: (Herewith)

- (A) Sketch of two (2) pictures (invisible).
- (B) Detector paper (2) -(special chemically treated
to bring out the invisible
picture).

1. (a) Directions: Dip detector paper in cold
water and draw across face of invisible
picture.
- (b) Letters and sketches could be made
invisible.
- (c) Merits of the process: As soon as the
invisible picture is made visible, no chemical
could make it disappear, unnoticed.
- (d) The Park Printing Co. (invisible printing)
of 817 Park Avenue, Brooklyn, N. Y. would
gladly co-operate.

REC'D 51
RECEIVED
FEB 27 1941

RECORDED
&
INDEXED

H. Kahan
H. KAHAN 1211

80-604-860
FEDERAL BUREAU OF INVESTIGATION
6 FEB 27 1941
U.S. DEPARTMENT OF JUSTICE
LABORATORY

①
Sundin
2-27-41
MS

ack 7-41
a. a. Park

75

CAA:AWK

February 27, 1941

Mr. H. Kahan
Assistant Naval Architect
Office of the Supervisor of Shipbuilding
11 Broadway
New York, New York

Re: Invisible Drawings; Method for
forwarding ~~confidential~~ data.

Dear Mr. Kahan:

I beg to acknowledge receipt of your letter of
February 19, 1941 forwarding information and specimens by
which invisible drawings may be transmitted together with
means of chemically developing through the application
of a second paper. This process is extremely interesting
and your courtesy in forwarding the material is sincerely
appreciated.

Sincerely yours,

John Edgar Hoover
Director

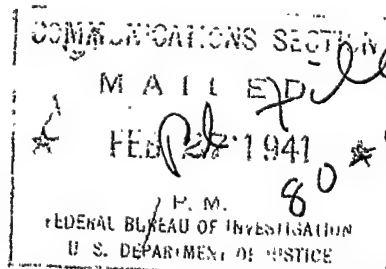
RECORDED

INDEXED

87

MAR 1 8

Mr. Tolson
Mr. Clegg
Mr. E. A. Tamm
Mr. Foxworth
Mr. Nathan
Mr. Ladd
Mr. Egan
Mr. Glavin
Mr. Nichols
Mr. Hendon
Mr. Rosen
Mr. Tracy
Miss Gandy



EPG
✓ 75
SK

DIRECTOR

~~SECRET~~

(U)

**Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.**

HHC:BG

March 3, 1941

Mr. Tolson.....
Mr. E. A. Tamm.....
Mr. Clegg.....
Mr. Foxworth.....
Mr. Nathan.....
Mr. Ladd.....
Mr. Glavin.....
Mr. Nichols.....
Mr. Hendon.....
Mr. Rosen.....
Mr. Tracy.....
Miss Gandy.....

MEMORANDUM FOR THE DIRECTOR

There is attached hereto a communication addressed
to me by [redacted]
together with an inclosure entitled, [redacted]

b7D

I just thought that the instructions in question
would be of interest and value to the Bureau's Laboratory Staff
and previous recommendations have been made [redacted]

Respectfully,

H. H. Clegg

~~ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
EXCEPT WHERE SHOWN
OTHERWISE~~

Classified by SP6 BJA/GCL
Declassify on: OADR 12/28/88
#232,187

RECORDED

~~SECRET~~

(U)

80-604-88
FEDERAL BUREAU OF INVESTIGATION
5 MAR 11 1941
U.S. DEPARTMENT OF JUSTICE
LADD LAB. FIVE

Laboratory

Date 3/7 1941

Mr. Allen	7118	Mr. LaRock	7325E
Mr. Appel	1410	Mr. Magee	7325C
Mr. Baughman	7325D	Mr. Martin	7326
Mr. Beach	7325F	Mr. McCarthy	7325C
Mr. Blackburn	1410	Mr. McKenna	7330
Mr. Blaine	1410	Mr. Mesnig	1410
Mr. Burgess	7328	Mr. Millen	7118
Mr. Chadduck	7325E	Mr. Miller	1410
Mr. Coffey	7326	Mr. Murray	7325D
Mr. Conrad	7120	Mr. Napier	1410
Mr. Couch	7325D	Mr. Parsons	7325D
Mr. Dingle	1410	Mr. Pfafman	7120
Mr. Dunlop	7325F	Mr. J. Willard	7325D
Mr. Feehan	1410	Mr. White	7325F
Mr. Felton	7325D	Mr. Williams	7118
Mr. Freimuth	7325F	Miss Frawley	7326
Mr. Gasteiger	1410	Typing Pool	7332
Mr. Holland	1410	LABORATORY FILES	
Mr. Hughes	7325D	Mr. _____	
Mr. Jevons	7325E		
6th FLOOR FILES			

anything good in here.

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 12/28/88 BY SP6 ETT

Laboratory

Date 2/10 1941

Mr. Allen	7118	Mr. LaRock	7325E
Mr. Appel	1410	Mr. Magee	7325C
Mr. Baughman	7325D	Mr. Martin	7326
Mr. Beach	7325F	Mr. McCarthy	7325C
Mr. Blackburn	1410	Mr. McKenna	7330
Mr. Blaine	1410	Mr. Mesnig	1410
Mr. Burgess	7328	Mr. Millen	7118
Mr. Chadduck	7325E	Mr. Miller	1410
Mr. Coffey	7326	Mr. Murray	7325D
Mr. Conrad	7120	Mr. Napier	1410
Mr. Couch	7325D	Mr. Parsons	7325D
Mr. Dingle	1410	Mr. Pfafman	7120
Mr. Dunlop	7325F	Mr. J. Willard	7325D
Mr. Feehan	1410	Mr. White	7325F
Mr. Felton	7325D	Mr. Williams	7118
Mr. Freimuth	7325F	Miss Frawley	7326
Mr. Gasteiger	1410	Typing Pool	7332
Mr. Holland	1410	LABORATORY FILES	
Mr. Hughes	7325D		
Mr. Jevons	7325E	Mr. _____	
6th FLOOR FILES			

*Nothing new - interesting to
see how they apply principles
of willing white sheep*

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED

Date 1941

TO: ☐ Mr. Q. Tamm
☐ Mr. Engert
☐ Mr. Delavigne
☐ Mr. Potter
☐ Mr. Bowles
☐ Mr. Buckley
☐ Mr. Nimmins
☐ Mrs. Surratt
☐ Mrs. Cox
☐ Mrs. Barr
☐ Mrs. Mann
☐ Miss Marko
☐ Mrs. Pagliaro
☐ Mrs. Davis
☐ Miss Dawson
☐ Mrs. Welliver
☐ Mrs. Sigson
☐ Mr. Miller
☐ Mr. Simpson
☒ Mr. Coffey
☐ Mr. Martin
☐ Mr. Baughman
☐ Mr. Blackburn
☐ Mr. Beach
☐ Mr. Conrad
☐ Mr. Pfafman
☐ Single Fingerprint
☐ Messengers
☐ Civil Service Desk

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 12/28/89 BY SP8 BJA/GCL
#232,187

☐ M
☐ Please Handle
☐ Post
☐ Correct
☐ Re-write
☐ Re-date
☐ See me
☐ Send file
☐ Note and return
☐ Initial
☐ Please sign

D. M. LADD
7639

ALL IN
HEREIN
DATE
See Me
Please
Route t

March 23, 1941.

Mr. Edgar Hoover,
Federal Bureau of Investigation,
Washington, D. C.

My dear Mr. Hoover,

Since, in your department, you probably know all the latest developments of deciphering faded and almost illegible handwriting, I am writing to ask if you will be so kind as to help me with my problem.

I recently inherited a lot of pictures and daguerotypes but with the passing of time, the names on them have faded and even with an ordinary magnifying glass I cannot make them out. There must be some way to bring out these names and I am writing to ask if you can tell me who to send them to. I shall be very grateful for any assistance you can give me in this matter.

Yours truly,

Emma Kiplinger
(Mrs. J. W.)

Emma Kiplinger
Mrs J. W. Kiplinger

230 Orchard Lane,
Columbus, Ohio.

3/31/41
Ans
aPC:z

RECORDED & INDEXED

80-604-89
FEDERAL BUREAU OF INVESTIGATION
5 MAR 26 1941
U. S. DEPARTMENT OF JUSTICE

RECORDED

EPC:AF
80-604-89

March 31, 1941

Mrs. J. W. Kiplinger
230 Orchard Lane
Columbus, Ohio

Dear Mrs. Kiplinger:

In response to your letter of March 23, 1941, I am pleased to transmit a copy of an article entitled "Restoration of Faded Writing". I trust that this will be of some interest to you.

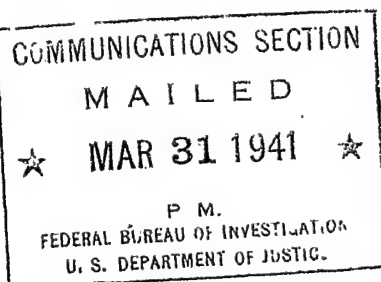
I regret that it is not possible for this Bureau's Technical Laboratory to perform work of this nature except for law enforcement agencies in connection with criminal investigations.

Sincerely yours,

John Edgar Hoover
Director

Enclosure

Mr. Tolson _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____



JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

JLG:MJ

March 25, 1941

80-604-86

44315

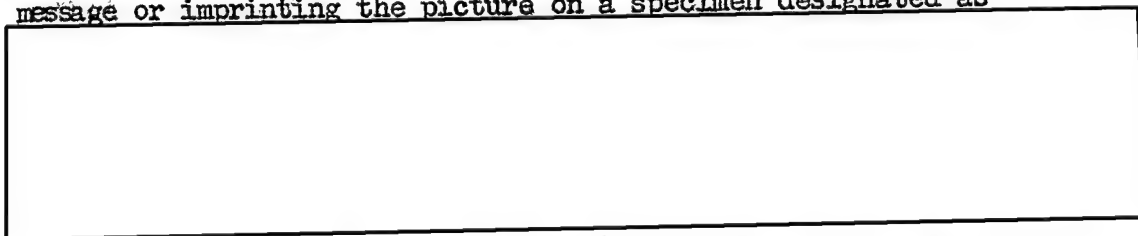
44314

MEMORANDUM FOR MR. LADD

Re: Invisible Drawings;
Method for Forwarding
Confidential Information.

Reference is made to a letter dated February 19, 1941 from Mr. H. Kahan, Assistant Naval Architect, Office of the Supervisor of Shipbuilding, New York City with which this contributor submitted information and specimens relative to a method for the transmittal of secret messages.

An examination of this material discloses that this method of secret writing has been previously known to the technicians of the Laboratory. Briefly the method consists in writing the invisible message or imprinting the picture on a specimen designated as



b3 Per CIA
b7E

Receipt of this information was acknowledged by letter dated February 27, 1941 in which letter Mr. Kahan was thanked for his interest and courtesy in submitting the material to the attention of the Bureau.

Respectfully,

E. P. Coffey
E. P. Coffey

RECORDED & INDEXED

80-604-90

FEDERAL BUREAU OF INVESTIGATION
3 MAR 27 1941
U. S. DEPARTMENT OF JUSTICE

LADD

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

EPC:AF

April 2, 1941

MEMORANDUM FOR MR. LADD

Re: Use of Secret Inks
by German Agents

b3 Per CIA
b7D
b7E

[redacted] visited my
office Saturday afternoon. He desired to advise of

[redacted] stated that this was of great interest for the
reason that [redacted]

b7D

I thanked him for the information and told him it would be
valuable to the Bureau in watching for similar cases. I am furnishing
this information to Mr. Connelley in New York by letter.

Respectfully,

E. P. Coffey
E. P. Coffey.

RECORDED & INDEXED

80-604-91
FEDERAL BUREAU OF INVESTIGATION
3 APR 5 1941
U.S. DEPARTMENT OF JUSTICE
LADD
FIVE

JOHN EDGAR HOOVER
DIRECTOR

General Bureau of Investigation
United States Department of Justice
Washington, D. C.

Mr. Tolson.....
Mr. E. A. Tamm.....
Mr. Clegg.....
Mr. Foxworth.....
Mr. Glavin.....
Mr. Ladd.....
Mr. Nichols.....
Mr. Rosen.....
Mr. Carson.....
Mr. Quinn Tamm.....
Mr. Hendon.....
Mr. Tracy.....
Miss Gandy.....

EPC:AF

April 1, 1941

MEMORANDUM FOR MR. LADD

Re: Rockwell V. Martin
The Grapho-Detector Corporation

b7D

[redacted] just tele-
phoned me from New York stating that [redacted]

2
4

I told him Martin was a deliberate fraud if he made such representations. I told him that Martin called here a week ago and gave a demonstration which was witnessed here without comment. [redacted] stated he suspected as much and would know how to handle Martin.

b7D

I immediately talked with all of the Laboratory men who witnessed Martin's demonstration last week—Miller, Stanley, J. A. Martin, as well as Beach, who talked with him. None of these men had any conversation with Martin whatsoever except comments on the chemical aspect of the demonstration. When Rockwell V. Martin talked to me he stated he had been sent to me by the District Attorney at New York City.

Obviously Martin is a high-pressure promoter, if not an out-and-out swindler. I suggest that the SAC at New York be instructed to have an Agent contact him at once and order him to desist from referring to the FBI in any way in his sales efforts.

RECORDED & INDEXED

Respectfully,

E. P. Coffey. *m*

80-604-92
FEDERAL BUREAU OF INVESTIGATION
2 APR 8 1941
U.S. DEPT. OF JUSTICE
1313
LADD
TOLSON
82

EPC:AF

April 1, 1941

SPECIAL DELIVERY

RECORDED

80-604-92 ✓

Mr. B. E. Sackett
Federal Bureau of Investigation
U. S. Department of Justice
607 U. S. Court House, Foley Square
New York, New York

Ref Rockwell V. Martin
Grapho-Detector Corporation

Dear Sir:

Last week, Rockwell V. Martin, representing the Grapho-Detector Corporation of America, 20 Broad Street, New York, New York, called voluntarily at the Bureau. He offered to demonstrate the Grapho-Detector product, a chemical preparation for restoring erased writings and detecting secret inks. Although this substance has been previously known to the Bureau, he was permitted to give the demonstration, which was witnessed by several of the Laboratory technicians. At this time he told Mr. Coffey that he had been referred to him by the District Attorney in the city of New York. No purchases were made of the Grapho-Detector product by the Bureau and none is contemplated.

Today, the Bureau received a telephone call from the

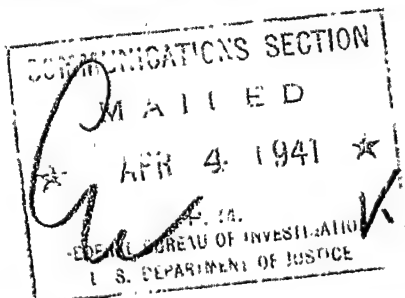


b7D

You are instructed to have an Agent from your office immediately proceed to contact Mr. Martin and advise him in no uncertain terms that the representations which he made are entirely fraudulent. He should be told that he is to desist from any false reference to the Federal Bureau of Investigation in connection with the sales of this product.

b7D

Mr. Tolson _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Foxworth _____
Mr. Glavin _____
Mr. Ladd _____
Mr. Nichols _____
Mr. Rosen _____
Mr. Carson _____
Mr. Quinn Tamm _____
Mr. Hendon _____
Mr. Tracy _____
Miss Gandy _____



Very truly yours,

John Edgar Hoover
Director

Handwritten signature and initials.

Subject: Optical instruments for visual examination of suspect documents.

204 Fourth Street, S.E.
Washington, D.C.
October 21, 1940

Mr. J. Edgar Hoover
Federal Bureau of Investigation
Department of Justice
Washington, D.C.

Dear Sir;

On making inquiries concerning the above topic at the conclusion of a regular tour of the Federal Bureau of Investigation, I was instructed that a letter would bring me such information as was available.

I am a former assistant in the physics laboratory at the University of Oregon, having held titles from undergraduate assistant to instructor. However, I hold the bachelor's and master's degrees in history.

I have been seeking published materials on instruments for visual examination of documents from which marks have faded, been removed, or on which secret inks have been used. I am quite sure that the Huntington Museum has developed visual methods for the inspection of palimpsests, but I have no idea where the descriptions may be published.

I believe that one of the recently developed stereoscopic projectors could be adapted for oblique lighting, and possibly for ultra-violet and infra-red lighting in such a way as to avoid the more time-consuming and costly microscopic and photographic methods. I am quite certain that the oblique lighting could be adapted from microscopic techniques on the basis of what a friend in a government laboratory showed me. I am not so sure of the rest. The advantages when large quantities of material are to be examined are quite obvious.

Any bibliographical references on present methods that your aides may be able to furnish will be greatly appreciated.

Yours sincerely,

John E. Caswell

ack
10-30-40
Caa: A

Page 2
Mr. John E. Caswell
Washington, D. C.

for that particular case to be selected.

If you are interested in noncriminal alterations and changes in documents the book "Books and Documents" by Julius Grant, Grafton and Company, London, 1937, contains a recent discussion of the subject with references to other publications of this kind. If you are in Washington of course the Library of Congress indices are available to you. These include innumerable references to general phases of the subject including descriptions of adapted apparatus.

It is hoped that the above will be of the assistance you desire.

Sincerely yours,

John Edgar Hoover
Director

CAA:AWK
80-604-68

RECORDED

October 30, 1940

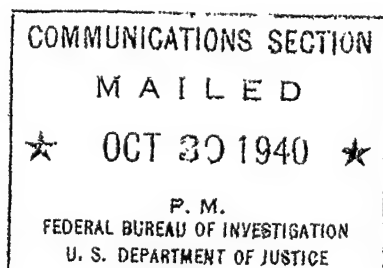
Mr. John E. Caswell
204 Fourth Street, Southeast
Washington, D. C.

Dear Mr. Caswell:

The Bureau has received your letter of October 21, 1940 seeking information with regard to optical instruments for visual examination of suspect documents concerning documents from which marks have faded, been removed, or on which secret inks have been used.

From the above statement it is not clear whether your interest is directed to papers altered or otherwise used in connection with fraudulent activities or activities of espionage agents, or whether you are concerned with determining the genuineness of historical or ancient papers. It is the policy of the Bureau to refuse requests for technical information generally in view of the possibility of furnishing those who do not have a legitimate interest. As a matter of fact the means of altering papers are infinitely varied and the technique of examination best calculated to succeed in any given case cannot be standardized depending instead upon a constantly changing experience of a highly specialized nature in which signs of the use of one method or another are recognized through personal familiarity with a large number of cases enabling the best procedure

Mr. Tolson _____
Mr. Nathan _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Ladd _____
Mr. Foxworth _____
Mr. Coffey _____
Mr. Egan _____
Mr. Glavin _____
Mr. Harbo _____
Mr. Hendon _____
Mr. McIntire _____
Mr. Nichols _____
Mr. Pennington _____
Mr. Rosen _____
Mr. Quinn Tamm _____
Adm. Files _____
Pers. Files _____
Tour Room _____
Mr. Tracy _____
Miss Gandy _____



Federal Bureau of Investigation
United States Department of Justice
CHICAGO, ILLINOIS

November 13, 1940

Director
Federal Bureau of Investigation
Washington, D. C.

Re: SECRET INKS

Dear Sir:

With reference to Bureau letter of July 29, 1940, Bureau file No. 80-604, please be informed that efforts were made to contact MRS. HELEN L. NORRINGTON. However, her mother, MRS. JULIA KERN advised that MRS. NORRINGTON is presently confined in a hospital located in Chicago, Illinois and is supposed to be in a serious condition and is not permitted to have visitors. MRS. KERN declined to furnish the name of the hospital in which MRS. NORRINGTON is confined.

This matter will be carried in a pending status and an effort will be made to contact MRS. NORRINGTON within the next sixty days.

Very truly yours,

W. S. Devereaux
W. S. DEVEREAUX, *a. g.*
Special Agent in Charge.

AHJ:MG
80-96

RECORDED & INDEXED
10

66

80-604- 71
FEDERAL BUREAU OF INVESTIGATION
NOV 15 1940
U. S. DEPARTMENT OF JUSTICE
<i>66</i>

JJS:NWD
80-604-70

RECORDED

November 16, 1940

Mr. Maurice G. Martineau
236 Mason Hall Dormitory
Michigan State College
East Lansing, Michigan

Dear Mr. Martineau:

Your communication dated October 20, 1940, has been received, and I am pleased indeed to learn of your interest in law enforcement.

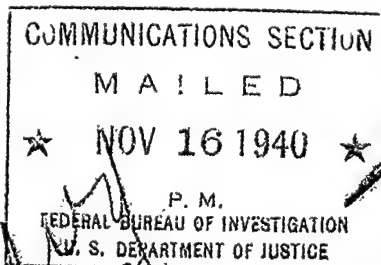
I wish to advise that it will be satisfactory for you to quote from the article entitled "Secret Writing With Sympathetic Inks" which appeared in the June, 1939, issue of the FBI Law Enforcement Bulletin if the paper to be prepared by you is limited to the use of law enforcement officers and agencies and is not given general distribution. It is impossible to grant a request to print this information for public reading.

If the material is used as outlined in your letter, it is desired that it be marked "Confidential - Not to be reprinted," and it is understood that the source of the information will be shown.

With best wishes and kind regards,

Sincerely yours,

Mr. Tolson _____
Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Egan _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____



236 Mason Hall Dormitory
Michigan State College
East Lansing, Michigan

October 28, 1940

53270

Mr. J. Edgar Hoover, Director
Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

Dear Mr. Hoover:

In my research work for a paper I have been assigned to write as a part of my studies in the School of Police Administration, Michigan State College, I am pleased to inform you that the article "Secret Writings with Sympathetic Inks" appearing on page eight of the June 1, 1939 issue of your FBI Law Enforcement Bulletin, contains a wealth of information pertinent to the subject of my paper.

In compliance with the first footnote of the article, I hereby request your permission to use the material therein contained as subject matter in the drafting of my paper. Use of the article will consist of copying the reference table given, and a condensation of the suggestions given for general examination of suspected documents.

I fully realize the significance of the facts contained in the article and their very confidential nature. However, the material used will be read only by members of the technical staff of the Michigan State Police, who will evaluate and grade the paper.

If you desire further assurance of the care which will be exercised in keeping the material confidential, I invite you to contact my instructor in scientific investigation:

Mr. LeRoy Smith, Laboratory Technician
Michigan State Police Headquarters
East Lansing, Michigan

May I add, in closing, that I have found all of your bulletins to be of tremendous value to me in my studies, and that I am sincerely grateful to you and to your department for the instructive articles which have proved to be so helpful.

Very truly yours,

Maurice G. Martineau

Maurice G. Martineau

RECORDED
&
INDEXED

80-604-70
FEDERAL BUREAU OF INVESTIGATION
5 OCT 29 1940
U.S. DEPARTMENT OF JUSTICE

ack 10
11-2-40
JG

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

October 14, 1940

SFP:AL

MEMORANDUM FOR MR. LADD

Reference is made to the letter addressed to Frau Martha Mann, Markobrunner Str., 22 Wilmersdorf, Berlin, Germany, and bearing the return address St. Denis, 3867 Alabama Avenue, Southeast, Washington, D. C., which was sent to the Laboratory by Mr. E. A. Tamm on October 5, 1940 to be examined for code or secret writing.

This letter was examined visually by ordinary light and by ultraviolet light and was [REDACTED] but no evidence of any secret writing was found. No further treatment was given inasmuch as it was requested that the letter be returned in its original state without any alterations. An examination was also made for the existence of a code or cipher message but no evidence of the existence of such was found.

b3 Per CIA
b7E

The letter and envelope were returned to Mr. E. A. Tamm on October 5, 1940, photographic copies having been made for the completion of the Bureau's files.

Respectfully,

E. P. Coffey
E. P. Coffey

80-604-67

FEDERAL BUREAU OF INVESTIGATION
5 OCT 14 1940
U. S. DEPARTMENT OF JUSTICE
LADD TAMM FIVE

3867 Alabama Ave S.E.
Washington. D. C.
1 October 1940

Unser süßes Schwesterlein

Schon längst haben wir
kein Wort von dir empfangen
und obgleich wir sicher sind
daß ihr frisch und gesund
seid, sind wir ängstlich zu
lernen daß dir und Herbert
nichts zugestoßen hat. Daher,
bitte, sende uns eine Linie
so daß wir unser Herz be-
ruhigen mögen.

Wir denken immer an
ihnen und hoffen daß es
bald der Tag kommen wird
wann wir wieder zusammen
in Frieden werden sein.

Federal Bureau of Investigation, U.S. Dept. of Justice-

ST. DENIS
3867 ALABAMA AVE. S.E.
WASHINGTON. D.C.

FRAU. MARTHA MANN
MARKOBRUNNER STR. 22
WILMERSDORF
BERLIN
GERMANY



Federal Bureau of Investigation U.S. Dept. of Justice-

Dusica ist ohne dich
verloren und Lück (ich
muß es gestehen), auch
Lück

Liebe.

Lück

Dusica

FEDERAL BUREAU OF INVESTIGATION

L-6

Laboratory

Date _____ 1940

___ Mr. Appel	1410	___ Mr. LaRock	7325E
___ Mr. Baughman	7325D	___ Mr. Magee	7325C
___ Mr. Beach	7325F	___ Mr. Martin	7326
___ Mr. Blackburn	1410	___ Mr. McCarthy	7325C
___ Mr. Blaine	1410	___ Mr. McKenna	7330
___ Mr. Burgess	7328	___ Mr. Mesnig	1410
___ Mr. Chadduck	7325E	___ Mr. Millen	7118
___ Mr. Coffey	7326	___ Mr. Miller	1410
___ Mr. Conrad	7120	___ Mr. Murray	7325D
___ Mr. Couch	7330	___ Mr. Napier	1410
___ Mr. Dingle	1410	___ Mr. Parsons	7325D
___ Mr. Dunlop	7325F	___ Mr. Pfafman	7120
___ Mr. Feehan	1410	___ Mr. Pickering	1410
___ Mr. Felton	7325D	___ Mr. J. Willard	7325D
___ Mr. Freimuth	7325F	___ Mr. White	7325F
___ Mr. Gasteiger	1410	___ Mr. Williams	7118
___ Mr. Gould	7328	___ Miss Frawley	7326
___ Mr. Hilcken	1410	___ Typing Pool	7332
___ Mr. Holland	1410	___ LABORATORY FILES	
___ Mr. Hughes	7325D	___ Files <i>6th floor</i>	
___ Mr. Jevons	7325E	___ Mr. _____	

See Me _____
 Please Handle _____
 Route to #1 Examiner _____

E. P. COFFEY

~~STRICTLY CONFIDENTIAL~~
NOT TO BE PUBLISHED

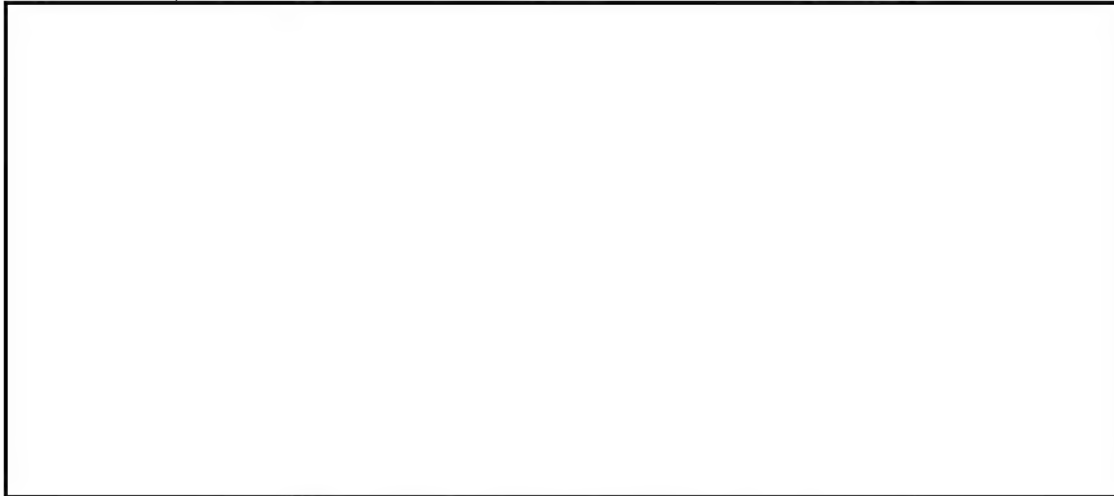
SUMMARY OF DATA ON SECRET INKS
AND THE CONCEALMENT OF MESSAGES

Concealment in art objects	55
Secret writing on the human body	56
Photographic methods	56
Painted & scratched surfaces	59

BIBLIOGRAPHY	60
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b3 Per CIA
b7E



This method of development detects any disturbance which has been set up upon the surface of the paper by drawing a pen dipped into water over it. Thus, writing in tap or distilled water is readily revealed.

This test will therefore reveal writing in any one of the enemy secret inks, provided the paper has not been damped after writing. However on some papers development takes place even when the paper has been damped after writing, therefore the test is included among the special tests.

Note: With reference to paragraph 4 on page 15, the experience in the Technical Laboratory of the FBI has shown that invisible offset writings caused by the transfer of the chlorides in inks can be developed by means of [redacted] followed by exposure to light.

b7E

58
11/12
240

Federal Bureau of Investigation
United States Department of Justice

GJS:JPM
3-

New York, N. Y.
November 5, 1940.

Director
Federal Bureau of Investigation
Washington, D. C.

Re: ~~X~~ CRIME DETECTION DATA AND METHODS.

Dear Sir:

There is herewith forwarded to the Bureau a copy of a book entitled ~~X~~ "FORENSIC CHEMISTRY" by HENRY T. F. ~~X~~ RHODES, which was recently brought out in England by the publishing house of CHAPMAN & HALL, LTD. The author is described as being the "Correspondent of the International Academy of Criminology; Honorary Research Assistant in the "Conan Doyle" Laboratory of Chemical Research, Department of Technical Police, Prefecture of the Rhone, France".

It will be noted that there is quite an extensive bibliography in the back of the book commencing on page 197.

This book was brought to the attention of Spécial Agent George J. Starr of this office by former employee STEPHEN M. ~~X~~ WILLMAN, who is associated with T. H. MC KENNA, INC., dealers in medical books, through whom we obtain most of the books purchased by this office. MR. WILLMAN had been requested to call to our attention any books he might come across which appeared to contain any information concerning the use of secret inks, and it is noted that there is a considerable amount of data in this book with relation to inks.

Another copy of this book is available according to MR. WILLMAN, and the Bureau is respectfully requested to inform this office immediately whether the copy submitted will be sufficient or whether an additional copy is desired.

Very truly yours,

B. E. Sackett
B. E. SACKETT, 80-604573
Special Agent in Charge.

RECORDED
INDEXED

FEDERAL BUREAU OF INVESTIGATION	
5 NOV 7 1940	
U. S. DEPARTMENT OF JUSTICE	
LAB. 11-19-40	RECORDED

Encls. 1.
Registered Mail.

Ans.
11-19-40
WGB

ENCLOSURE

Enclosure
Attached in lab
18

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

LPC:AF
80-604

August 2, 1940

MEMORANDUM FOR MR. LADD

Re: Summation of Data
on Secret Inks and
Concealed Messages

I am sending you herewith four copies of a 64-page summation of all data in the Bureau on the subject of secret inks and the concealment of messages. This was prepared at the request of Mr. E. A. Tamm. I understand that he will furnish one copy to G-2 and one copy to ONI.

This work represents the joint efforts of Messrs. Pickering and Hilcken in the Laboratory. I have reviewed it very carefully and consider it a most comprehensive treatise of the subject.

Respectfully,

E. P. Coffey
E. P. Coffey.

1 ENCL. W

Memorandum
5-40
RECORDED

80-604-72	
FEDERAL BUREAU OF INVESTIGATION	
5 NOV 28 1940	
U. S. DEPARTMENT OF JUSTICE	
LADD	TAMM
FIVE	

WGB:IG

November 19, 1940

80-604-73

Special Agent in Charge
New York, New York

Re: Crime Detection Data and Methods

Dear Sir:

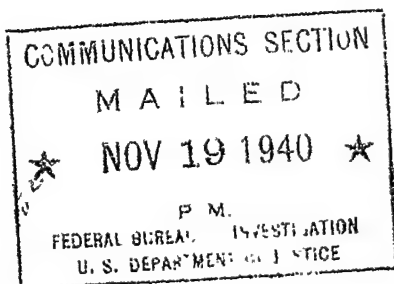
Reference is made to your letter of November 5, 1940 with which you transmitted a copy of the book entitled, "Forensic Chemistry" by Henry T. F. Rhodes.

You are advised that this book is being made a part of the library of the Technical Laboratory. It is believed that this copy will be sufficient for our present requirements and it will therefore not be necessary for you to obtain the additional copy which is available.

Very truly yours,

John Edgar Hoover
Director

Mr. Tolson _____
Mr. Clegg _____
Mr. E. A. Tamm _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Egan _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____



[Handwritten signature]
[Handwritten initials]
64

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

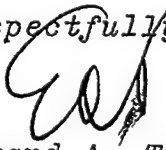
EAT:DS

November 25, 1940

MEMORANDUM FOR THE DIRECTOR

I furnished to Colonel Lester of G-2 a copy of the memorandum dated August 2, 1940, prepared in the Laboratory which pertains to ^Dsecret inks and concealed messages. This material was prepared originally for this purpose.

Respectfully,


Edward A. Tamm

RECORDED

80-664-74

FEDERAL BUREAU OF INVESTIGATION
5 NOV 28 1940
U. S. DEPARTMENT OF JUSTICE
TOLSON LADD NICHOLS HENDON

FIVE

12-5-40
mcy

Federal Bureau of Investigation
United States Department of Justice
New York, New York

TPL:MR
62-7051

April 11, 1941

Director
Federal Bureau of Investigation
Washington, D. C.

Re: ROCKWELL V. MARTIN,
~~X~~GRAPHO-~~X~~DETECTOR CORPORATION.

Dear Sir:

As requested in Bureau letter dated April 1, 1941, entitled as above, ROCKWELL V. MARTIN, salesman for the Grapho-Detector Corporation of America, 20 Broad Street, whose residence is 94-62 219 Strcet, Queens Village, Long Island, was interviewed by Special Agent T. P. Lynch of this Office on April 10, 1941.

Mr. MARTIN stated that at no time had he ever told any of the individuals or companies that he visited as prospective customers for the product of the above mentioned company, that this product was highly recommended to him by the Bureau; nor did he advise them that the Bureau recommended its use. He stated that his product spoke for itself and consequently he did not have to tell his customers that the Federal Bureau of Investigation recommended it. He exhibited a full page pamphlet to Agent Lynch on the reverse side of which is a list of banks, newspapers, insurance companies, and large concerns as well as various police, state and district attorney offices of the New York State area and vicinity, who are users of their product.

RECORDED & INDEXED

Mr. MARTIN stated that on his visit to the Bureau he conversed with Mr. Coffey, Dr. Miller of the Laboratory, at which time Mr. Coffey had advised that the Bureau was already cognizant of the usefulness of the product which he sold but, nevertheless, he afforded him the courtesy of allowing him to demonstrate same in the Laboratory and, although he was not encouraged to any extent that the Bureau might purchase the product, he likewise was not told that there would not be a chance for him to make a sale.

Regardless of the denials made by MARTIN that he had made no reference to the Bureau in contacting his prospective customers, he was emphatically told that he must not in the future

86-604-94

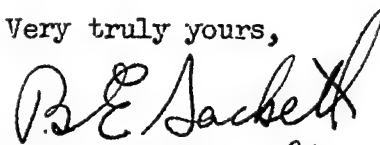
FEDERAL BUREAU OF INVESTIGATION
APR 11 1941
U.S. DEPARTMENT OF JUSTICE

CHAS. L. BART

TPL:MR
62-7051
4/11/41

make any reference to the Bureau when discussing the Grapho-Detector product which he sold.

Very truly yours,

A handwritten signature in dark ink, appearing to read "B. F. Sackett". The signature is fluid and cursive, with a large, stylized "S" at the end.

B. F. SACKETT *ai*
Special Agent in Charge

April 17, 1941

JPS:BAJ

80-604

MEMORANDUM FOR MR. LADD

Re: Secret Inks

At my request Mr. Stanley has reviewed the material contained in the file on the above subject. He reports that the summary of this subject found in the file under the date 11/18/40 is most comprehensive and complete and any attempt on his part to summarize the material would only lead to repetition.

Mr. Stanley reports that from 11/18/40 to 3/25/41 which is the last entry in the file at this time there are in his opinion only two entries which should be incorporated in the above-mentioned summary. Entry 80-604-88 re: General Instructions for Writing in Secret Inks, that portion entitled "Treatment after Writing". The process described is interesting and research will be conducted to determine any particular advantages it may have. Entry 80-604-77

re: [redacted] should be incorporated in the above summary as a matter of record. The only difference between this solution and the solution used in this laboratory (80-604-56 Page 4) is the use of [redacted] The final concentration of each constituent is approximately the same. b3 Per CIA b7E

Although there are a number of substances which have been used as secret inks and although the number of possible compounds and combinations of compounds is enormous a research project encompassing such a vast field would be impractical. Consequently, Mr. Stanley has chosen a number of substances which he believes will be most practical as secret inks because of their accessibility and nature. Research on the following substances will be conducted.

Mr. Tolson _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Foxworth _____
Mr. Nathan _____
Mr. Ladd _____
Mr. Glavin _____
Mr. Nichols _____
Mr. Hendon _____
Mr. Rosen _____
Mr. Tracy _____
Miss Gandy _____

b3 Per CIA
b7E

Page 2

Memorandum for Mr. Ladd

Research has been conducted upon number one in the above list and a full report on this will be presented in the near future.

It has been Mr. Stanley's observation that a secret ink which uses water as a solvent can be detected on either dampened or undampened paper. Plain water writing confirms this. The type paper which has been found to be most practical is the thin copy sheet type known as manifold paper.

b3 Per CIA
b7E

Respectfully,

E. P. Coffey

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

FMM:EK
80-604

April 19, 1941

Memorandum for Mr. Ladd

Re: Representative of The Grapho -
Detector Corporation.

Mr. Rockwell V. Martin of the Grapho - Detector Corporation of America 20 Broad Street, New York, New York called at my office on afternoon of March 26, 1941 stating that he had been referred to the Technical Laboratory by the District Attorney for the District of Columbia for the purpose of demonstrating a product referred to as the Grapho-Detector. I designated Mr. J. P. Stanley and Mr. Fred M. Miller of the Technical Laboratory to witness the demonstration on this matter.

Mr. Martin explained that the Grapho-Detector consisted of two solutions designed to develop secret writings, chemically eradicated ink writing, erasures accomplished by mechanical means or any other alterations produced on the surface of writing paper by various media. The principle subject of his demonstration consisted in showing how solution #1 when applied to a check which contained some chemical alterations would show up with a decidedly dark brown color at the point where the eradication had been accomplished. It is noted, incidentally, that these alterations could be determined by exposing the checks to a strong source of ultra violet light.

Mr. Martin further explained and demonstrated that this first solution could be used to develop secret inks and indented writing, providing of course that the indentations were made with a sufficient amount of pressure. He also showed that erasures accomplished by means of rubber erasers could easily be detected. Likewise scratches made with soft wooden objects such as a toothpick or orange stick could be detected by the application of the first solution.

The second solution could be applied following the first for the purpose of removing the brown stain resulting from the application of the first solution. It is his claim that subsequent to the removal of the second solution it would be difficult if not impossible to show that the evidence had been tampered with. Examination of the Laboratory

ENCLOSURE

RECORDED & INDEXED

80-604-95

[LADD]

CHIEF CLERK

Page 2
Memorandum for Mr. Ladd

however indicated that the application of these solutions removed the gloss to a considerable extent from the paper so that its application could be detected.

The use of this substance is by no means unknown to the Laboratory since it has been thoroughly tried out and used over a period of several years here in the Laboratory. The formulae for these two solutions are known, the first consisting of [redacted] modification of the solution commonly referred to as Doctor Erlich's solution. The second solution is merely [redacted] solution. b3 Per CIA b7E

This fellow appeared to me to be nothing but a high pressure salesman promoting a product and selling it to District Attorneys, police departments, and particularly banks at exorbitant prices and with very high sounding promises as to its usefulness. A small quantity of this Grapho-Detector contained in a kit together with a camel's hair brush is sold for \$17.50. This company also sells a larger size kit for \$30.00 allegedly containing seven times the quantity of material in the smaller kit.

Inasmuch as the possibilities of this substance are well known in the Laboratory it is not believed advisable at this time to recommend the purchase of any of this material, particularly since its intrinsic value is only about ten cents, and furthermore since the formulae for its preparation is known.

Respectfully,


E. P. Coffey

The Grapho-Detector

900
3/2
340

87604

62-39586

D O C U M E N T S . . .

WILLS, LETTERS OF CREDIT, PASSPORTS,
ACCOUNT BOOKS, DEEDS, CASH-VOUCHERS,
CHECKS, SAVINGS BANK BOOKS, BONDS

... ARE SUBJECT TO ALTERATIONS.

ALTERATIONS can be discovered in the criminal laboratory but some of the various methods are complicated and some deface the examined document.

A NEW METHOD, developed by Dr. J. Ehrlich, the eminent European chemist, is simple enough, even for laymen, to use with definite results, in one to two minutes, without risk of defacing the examined paper.

THE "GRAPHO-DETECTOR" method consists of the application of two harmless liquids . . . non volatile . . . non poisonous . . . contained in a pocket-size kit, convenient to carry and instantly ready for use.

G R A P H O - D E T E C T O R (U. S. PATENT)

has been tested and endorsed by such noted scientists and criminologists as

Sir Norman Kendall and Sir Hugh Tronbull, LONDON; Dr. Locard, LYONS; M. Magny and M. Mondanel, PARIS; Prof. Lenz, VIENNA; Dr. Rechter, BRUSSELS; Dr. Muller, ZURICH; Prof. Bischoff, LAUSANNE; P. Rochat, GENEVA; Prof. Hulsebosh-Ledden, AMSTERDAM; H. Nilsson, STOCKHOLM; J. V. Haring, NEW YORK, and other world renowned authorities.

ALL TRACES OF THE EXAMINATION CAN BE INSTANTLY REMOVED . . . the document is restored to its original state, as it appeared before the examination.

SUBSEQUENT INVESTIGATIONS by other methods are entirely possible since the GRAPHO-DETECTOR method is harmless to the most highly sensitized papers and does not interfere with other processes.

ALTERATIONS to which documents are subject can be divided into the following principal groups:

Mechanical Alterations.

Chemical Alterations.

Additional Writing.

Invisible Writing.

*30 = large
7X small size

IF ORIGINAL writing has been removed by means of abrasives (knife, rubber-eraser, etc.) or chemicals . . . if part of the original paper has been cut out and the space refitted with new, altered parts . . . the **PAPER SURFACE** or the **FIBRE** has been disturbed by expansion, swelling, displacement, pressure or reduction. Such changes have often been made so that they are entirely invisible to the eye.

GRAPHO-DETECTOR reacts on the paper surface and its fibre. Alterations and disturbances become visible as distinct discolorations on both front and back of the paper. They are clear and sharp, and remain visible long enough for a thorough investigation of the falsification. Then, **ALL TRACES OF THE INVESTIGATION CAN BE REMOVED.**

80-104 75

MECHANICAL ALTERATIONS

A BOND, stock certificate, security or similar paper (Fig. 1) is examined.

Upon application of LIQUID "A" to the **face** of the document, it becomes apparent that (Fig. 2) (a) the "8" and the "0" have been tampered with . . . discoloration . . . and (b) something has been obliterated under the typewritten "J. F. JAY".

Now, LIQUID "A" is applied to the **BACK OF THE DOCUMENT** (Fig. 3) and we prove that (a) the original number was 2073 and not 2870, the "0" having been changed into an "8" and the "3" into an "0" and, (b) the original typewritten words were not "J. F. JAY" but were "F. D. DOE", before the alteration was made. The forger cannot remove the original impression made through the paper, therefore the original writing will reappear on the back surface of the examined paper with the superimposed outline of subsequently written words.

After the alterations are revealed, LIQUID "B" is applied with cotton or blotter; **all discolorations disappear** and, after careful blotting, the document is restored to its original state as Fig. 1.

Where it is desired to reveal original impressions, the reverse side of a document must be treated and examined. Obliterated pencil- or typewriting can be disclosed, and impressions on second sheets where no carbon paper has been used, can be made visible. This type of investigation is of importance in the examination of carbon copies, writing pads, etc.

THE CHECK (Fig. 4) appears legitimate. Upon application of LIQUID "A" (Fig. 5), it is revealed that (a) the forger apparently lacked suitable means of removing the lines written with check-writer or protectograph. He, therefore, cut out the part of the paper containing the original lines and fitted into the resulting opening (window) an exact insert of identical or simulated paper. Then with typewriter (or check-writer) he wrote the new, raised amount. The surface of the paper was disturbed by the cutting and a sharp outline of the "window" becomes visible; (b) two lines across the check become visible, proving that the original was "crossed." All traces of the examination can be removed as in Case I, and the document restored.

Note: The frequent practice of re-fitting postage stamps or removing cancellations, is revealed in a similar manner.

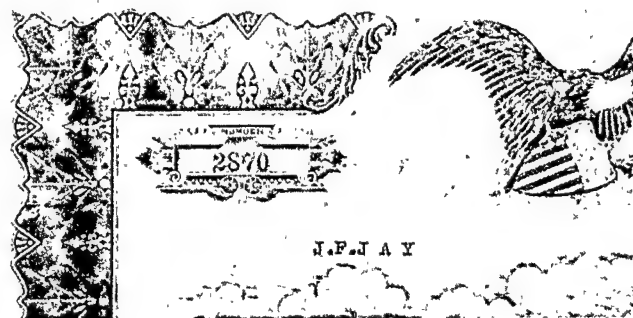


Figure 1

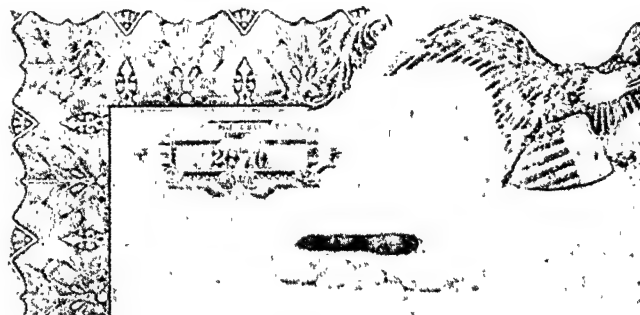


Figure 2

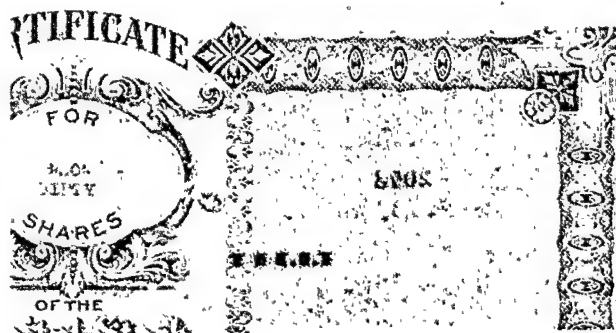


Figure 3

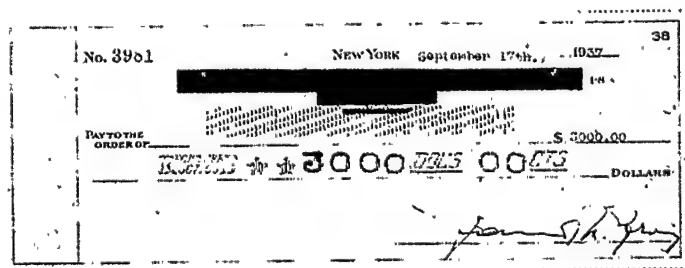


Figure 4

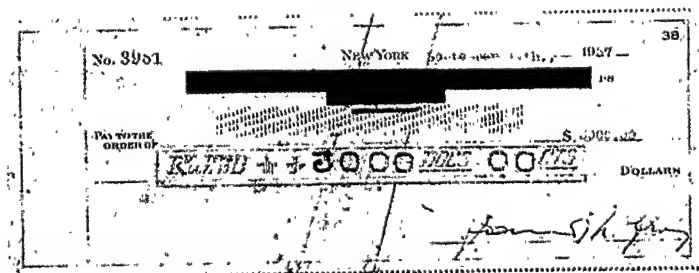


Figure 5

CHEMICAL ALTERATIONS

THE document (Fig. 6) appears to be perfectly legitimate. LIQUID "A" of the GRAPHO-DETECTOR is applied. After a few seconds brown stains become visible (Fig. 7) and prove that (a) The dash after the original "300" was obliterated, and "0" and a new dash added, making the figure appear "3000.—"; (b) "One" was eradicated and "Three" substituted; (c) an "s" was added to "month" (see under "ADDITIONAL WRITING"), (d) "... hundred" was eradicated and "... thousand" substituted; (e) "You" was eradicated and "I" substituted. In many cases the original writing becomes faintly visible. After the alterations are revealed, LIQUID "B" is applied and the document is restored to its original state as Fig. 6.

\$ 3000.— New York October 1st 1939
Three months after date I promise to pay
to the order of John J. Kelly, Jr. Paul, Minn.
Thirtysix hundred Dollars
Payable at St. Paul, Minn.

Figure 6

\$ 3000.— New York October 1st 1939
Three months after date I promise to pay
to the order of John J. Kelly, Jr. Paul, Minn.
Thirtysix hundred Dollars
Payable at St. Paul, Minn.

Figure 7

INVISIBLE WRITING

WHEN it is desired to examine papers for the purpose of detecting secret communications, such as prisoner's correspondence, censorship, intelligence-messages . . . whether invisible (latent) messages are written with liquids by pen or brush, with a dry pen, toothpick, fingernail or other instruments . . . the GRAPHO-DETECTOR will reveal all such writing.

The document (Fig. 8) appears to bear only the legitimate message. To examine it for secret communications, a light stroke is made across the visible writing, with fingernail or toothpick, to determine whether the paper has been chemically prepared.

Upon application of "LIQUID "A", the stroke must become visible if no chemical coating has been applied to the paper. (Fig. 9). If no mark appears, the original surface of the paper has been tampered with.

The secret message also appears between the original legitimate lines (Fig. 9).

When LIQUID "B" is applied and the paper carefully blotted, no visible trace of an examination is left. Author and receiver of the message are unaware that its contents are known to the examining authority, and appropriate precautionary measures can be taken.

Dear Alice:

Thanks for your note. I shall not be here during the whole of next week. I am leaving for Chicago to-night and you will just as well ring me up as I should be to order mail.

Sincerely

M

Figure 8

Dear Alice:

Thanks for your note. I shall not be here during the whole of next week. I am leaving for Chicago to-night and you will just as well ring me up as I should be to order mail.

Sincerely

M

Figure 9

ADDITIONAL WRITING

GRAPHO-DETECTOR will reveal differences in the age of writings made with ordinary inks, such as anthrazene, alizarine or other iron-containing inks. Aniline inks will give no positive results.

A Will (Fig. 10), upon examination, shows that parts of the writing are of a darker shade than others (Fig. 11). The document was not written all at one time. Additions . . . generally the darker shade of writing . . . have subsequently been made.

Additions to an original document, whether made with identical ink or not, or after an interval of years, months, weeks, days or hours, will, under GRAPHO-DETECTOR, appear in different shades.

The examined document can be restored to its original condition (Fig. 10) by applying LIQUID "B" as previously indicated.

I hereby appoint Albert Peter Roe and Thomas A. Smith to be Executors of this my last Will and Testament.

In Witness Whereof, I have hereunto subscribed my name, and affixed my seal, the 1st day of May in the year one thousand nine hundred and one.

Witnesses:

Figure 10

I hereby appoint Albert Peter Roe and Thomas A. Smith to be Executors of this my last Will and Testament.

In Witness Whereof, I have hereunto subscribed my name, and affixed my seal, the 1st day of May in the year one thousand nine hundred and one.

Witnesses:

Figure 11

THE NATIONAL SURETY CORPORATION, New York, wrote on April 29th 1940:

... we desire to compliment you on your work in endeavoring to provide some means of helping law enforcement agencies and business generally, to detect the type of losses that arise through alterations of the various types of paper that are used in business.

The **AMERICAN BANKERS ASSOCIATION** in their Protective Bulletin of August 1940 write:

... the kit is valuable to handwriting examiners or banks in making tests on vouchers, checks, drafts, notes and letters of credit, accounting books, passbooks, sales records, stocks, bonds and other paper used in the course of banking.

MR. J. VREELAND HARING of New York, Expert Examiner of Questioned Documents (Lindbergh, Hauptmann Case), writes:

... I have had occasion to make use of the Grapho-Detector kit several times in the examination of very important matters ... the result we obtained in each instance was truly startling ... your Grapho-Detector kit is remarkable, not alone for the simplicity of operation ... absolute certainty ... speedy reaction whenever applied to altered spot ... also a valuable aid in determining the relative age of writings ...

... In the creating and perfecting of your device you have doubtless performed a distinct, protective public service.

Some of the Many Prominent Users of the GRAPHO-DETECTOR

FINANCE, BANKING AND INDUSTRY

Bank of Manhattan
Bankers Trust Co.
Bowery Savings Bank
Central Hanover Bank & Trust Co.
Central Savings Bank
Chase National Bank
Cleveland Trust Co.
First National Bank & Trust Co.
Flatbush Savings Bank
First National Bank, New Rochelle
Hartford Connecticut Trust Co.
Irving Trust Co.
Manufacturers Trust Co.
J. P. Morgan & Co., Inc.
The New Haven Bank N. B. A.
American Express Co.
Morris Plan Industrial Bank of N. Y.
Seaman's Bank for Savings
Public Loan Corp.
Tradesmens National Bank of New Haven
Travellers Bank & Trust Co.
Worcester County Trust Co.

National Surety Corporation
State Mutual Life Assurance Co.,
Connecticut General Life Insurance Co.
The State Insurance Fund, N. Y.
The Prudential Insurance Co. of America.
Eagle Indemnity Co.
Royal Indemnity Co.
Great American Indemnity Co.
Globe Indemnity Co.

General Motors Corporation
U. S. Steel Corporation
The News
American Bank Note Co.
Corn Products Refining Co.
Robins Dry Dock & Repair Co.

Abbott, Proctor & Paine
Carlisle, Mellick & Co.
Dominick & Dominick
Foster & Adams
Post & Flagg
J. & W. Seligman & Co.,

GRAPHO-DETECTOR

chemicals do not deteriorate if kept well closed in their original containers. The kit contains a quantity sufficient to examine 30-80 documents, depending on their size.

Price of Complete Kit \$17.50

POLICE, STATE & D. A. OFFICES

State of Connecticut
City of Hartford
Jersey City, N. J.
Mamaroneck, N. Y.
Nassau County, N. Y.
City of Newark, N. J.
City of New Haven, Conn.
City of Orange, N. J.
Port Chester, N. Y.
Rockville Centre, N. Y.
Rye, N. Y.
Essex County, N. J.
City of Waterbury, Conn.
City of Worcester, Mass.
Union County, Elizabeth, N. J.
Suffolk County, N. Y.
Kings County, N. Y.
Queens County, N. Y.
County of Westchester, White Plains,
Clinton Prison, Dannemora, N. Y.
County of Dutchess, N. Y.
Poughkeepsie, N. Y.
City of Albany, N. Y.
New York Central System

THE GRAPHO-DETECTOR CORP. OF AMERICA

20 Broad Street, New York, N. Y.

WHITEHALL 4-7976

The Grapho-Detector Corporation
of America

ROCKWELL V. MARTIN

20 BROAD STREET
NEW YORK, N. Y.

DIRECTOR

b6
b7C

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

April 22, 1941

JPS:JR
80-604

~~CONFIDENTIAL~~

MEMORANDUM FOR MR. LADD

Re: Report from [redacted]
[redacted]

For record purposes Mr. Stanley has summarized the material contained in the above report which is of interest in connection with secret writing. The report. [redacted]

It is of interest to note [redacted]

b3 Per CIA
b7D
b7E

b3 Per CIA
b7D
b7E

LADD
FIVE
DRAYTON

Page Two
Memo for Mr. Ladd



b3 Per CIA
b7D
b7E



b3 Per CIA
b7D
b7E

Respectfully,


E. P. Coffey

Laboratory

Date 5/26/41 1941

___ Mr. Allen	7118	___ Mr. LaRock	7325E
___ Mr. Appel	1410	___ Mr. Magee	7325C
___ Mr. Baughman	7325D	___ Mr. Martin	7326
___ Mr. Beach	7325F	___ Mr. McCarthy	7325C
___ Mr. Blackburn	1410	___ Mr. McKenna	7330
___ Mr. Blaine	1410	___ Mr. Mesnig	1410
___ Mr. Chadduck	7325E	___ Mr. Millen	7118
___ Mr. Coffey	7326	___ Mr. Miller	1410
___ Mr. Conrad	7120	___ Mr. Murray	7325D
___ Mr. Couch	7325D	___ Mr. Napier	1410
___ Mr. Dingle	1410	___ Mr. Parsons	7325D
___ Mr. Dunlop	7325F	___ Mr. Pfafman	7120
___ Mr. Feehan	1410	___ Mr. J. Willard	7325D
___ Mr. Felton	7325D	___ Mr. White	7325F
___ Mr. Freimuth	7325F	___ Mr. Williams	7118
___ Mr. Gasteiger	1410	___ Miss Frawley	7326
___ Mr. Gould	7328	___ Records	7328
___ Mr. Holland	1410	___ Typing Pool	7332
___ Mr. Hughes	7325D	___ LABORATORY FILES	
___ Mr. Jevons	7325E		
<u>6th FLOOR FILES</u>		___ Mr. _____	

Please file in 80-6041

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

April 22, 1941

JFS:EHJ
80-604

MEMORANDUM FOR MR. LADD

Re: Rapid Removal of [redacted]
Fingerprint Stains

I instructed Mr. Stanley of the Chemical Laboratory

The ordinary methods of removal such as use of an air vent, use of hot air dryer and use of a hot flat iron proved to be inadequate due to the intensity of the [redacted] prints. The latter in itself is due to the much longer period of exposure required for the detection of the secret writing than for the ordinary development of fingerprints.

Mr. Stanley reports that if the document is subjected to light steaming and then immediately to [redacted] the prints rapidly disappear. Even the darkest prints can be made to disappear rapidly in this manner. Since this method in no way effects the texture of the paper, the writing inks or the secret inks it is highly recommended for adoption.

Respectfully,

E. P. Coffey

RECORDED
&
INDEXED

80-604-97
FEDERAL BUREAU OF INVESTIGATION
6 MAY 6 1941
U.S. DEPARTMENT OF JUSTICE
LADD

b3 Per CIA
b7E

b3 Per CIA
b7E

I seriously doubts
applicability of this
procedure.
9/5/41. M.A.

Noted 5-2-41
F

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

PEF:JB
9:12 AM

May 6, 1941

MEMORANDUM FOR MR. D. M. LADD *PL*

g
Definition of Secret Ink
Commander ~~Riheldaffer~~ of ONI telephoned this morning and advised that a Mr. Boone, one of their crypto-analysis section people, is giving a course of talks to new classes of I. V. S. officers being called in and he wants to check with some one at the FBI on secret inks and also on any contact for exchange of information which we may have had on their methods. He inquired as to the proper person to contact in this instance, and I told him Mr. Boone might call you.

Respectfully,

131
P. E. Foxworth

ADDENDUM 5/8/41 mm:

This matter was taken up with the Executive Conference on May 6, 1941 at which time the Conference instructed that Mr. Boone be furnished any information which had been previously published in the Bureau's Law Enforcement Bulletin. I accordingly so instructed the Laboratory.

On May 7, 1941 Lt. Boone telephoned the writer and advised that he would like to come over for a conference on May 8 with reference to information on secret inks. He will be interviewed and the information with reference to the

b7D
5-10-41
mem. to Ladd
EPK

JOHN EDGAR HOOVER
DIRECTOR

Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

JAM:AF

May 19, 1941

Mr. Tolson _____
Mr. E. A. Tamm _____
Mr. Clegg _____
Mr. Foxworth _____
Mr. Glavin _____
Mr. Ladd _____
Mr. Nichols _____
Mr. Rosen _____
Mr. Carson _____
Mr. Drayton _____
Mr. Quinn Tamm _____
Mr. Hendon _____
Mr. Coffey _____
Mr. Harbo _____
Tele. Room _____
Tour Room _____
Mr. Nease _____
Mr. Tracy _____
Miss Gandy _____

MEMORANDUM FOR MR. LADD

Re: Inquiry of Remington Kellogg,
Smithsonian Institute, concerning
restoration of writings.

On the afternoon of May 17, 1941, Mr. McKenna of the Director's Office advised that Mr. Remington Kellogg of the Smithsonian Institute had called and made inquiry concerning a chemical which might be used in the restoration of aged writings on bone. McKenna stated Kellogg requested that the Laboratory call him Monday morning, May 19th.

Mr. Martin communicated with Mr. Kellogg who advised they had some bones on which appeared writing done about a hundred years ago and same was becoming somewhat faded. He requested the name of a chemical which might be used to make the writing more visible. He was advised that in the event the writings were of an iron ink the fumes from [redacted] would probably make the writings more legible. He was appreciative of this information.

b3 Per CIA
b7E

Respectfully,

E P Coffey
E. P. Coffey.

RECORDED
&
INDEXED

80-604-100
FEDERAL BUREAU OF INVESTIGATION
3 MAY 22 1941
U.S. DEPARTMENT OF JUSTICE
LADD

CH-2

FEDERAL BUREAU OF INVESTIGATION

Laboratory

Date 5/26/41 1941

___ Mr. Allen	7118	___ Mr. LaRock	7325E
___ Mr. Appel	1410	___ Mr. Magee	7325C
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___ Mr. Chadduck	7325E	___ Mr. Millen	7118
___ Mr. Coffey	7326	___ Mr. Miller	1410
___ Mr. Conrad	7120	___ Mr. Murray	7325D
___ Mr. Couch	7325D	___ Mr. Napier	1410
___ Mr. Dingle	1410	___ Mr. Parsons	7325D
___ Mr. Dunlop	7325F	___ Mr. Pfafman	7120
___ Mr. Feehan	1410	___ Mr. J. Willard	7325D
___ Mr. Felton	7325D	___ Mr. White	7325F
___ Mr. Freimuth	7325F	___ Mr. Williams	7118
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___ Mr. Hughes	7325D	___ LABORATORY FILES	
___ Mr. Jevons	7325E		
<u>✓</u> 6th FLOOR FILES		___ Mr. _____	

Please File in 80-604

See Me _____
 Please Handle _____
 Route to #1 Examiner _____

E. P. Coffey
E. P. COFFEY

Date of removal 4-18-44

Report
Letter
Enclosure _____ submitted by _____

dated 5-26-41 has been removed for Mr. Banghman
to be sent to for own use

Subject	
Synopsis	

b7D

This is to be removed from file upon the return of the item and forwarded to the Coordinator of Mail and Files.

Date 4-18-44 Removed by E. Bennett

File Number 80-604